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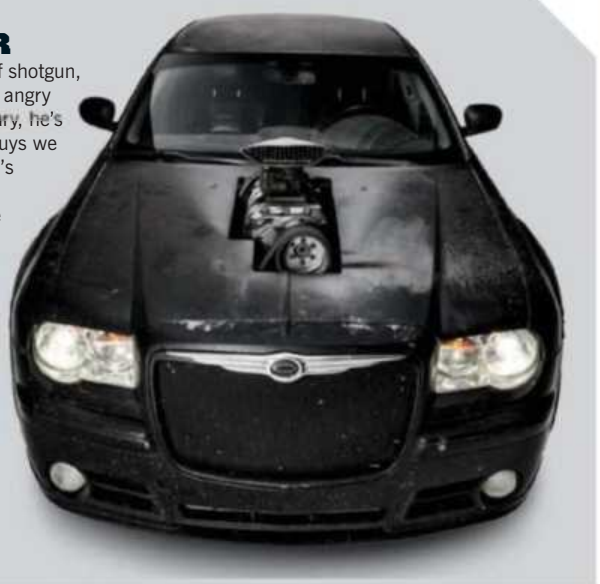
VOLUME 28 ✪ NUMBER 11 ✪ NOVEMBER 2015

ON THE COVER

Don't sweat the sawed-off shotgun, "Mad" Matt Leischer isn't angry at anybody—to the contrary, he's one of the most friendly guys we know. We mean to say he's mad in the clinical sense, because he's the only one who's ever been crazy enough to successfully mate an old-school 6-71 GMC huffer to a modern Gen III Hemi—and figure out how to make it all work with the factory computer, and make it his daily driver. Photo illustration by Jorge Nunez



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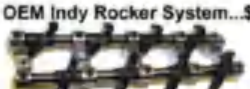

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WELCOME TO THE REAL FURY ROAD

Any true gearhead who is also a movie buff has seen the summer blockbuster movie *Mad Max: Fury Road*. (Kudos to the studio for the Mopar reference!) The folks in Hollywood have got our number dialed, and with the right formula they can have us motor-heads marching to the theatre like a hoard of zombies, myself included. A huge fan of the original 1979 flick, I'm pretty tough to please when it comes to car movies, and my verdict is that *Fury Road* delivers the cinematic goods. And while *Mad Max: Fury Road* has by now petered out at the box office and is now wheezing its last gasp at the dollar movie house, the same cannot be said for our cover car.

We know what you're thinking. We conspired to exploit the release of the movie—but nothing could be further from the truth. For starters, we're too late to piggyback on the marketing juggernaut of the film. If anything, we may be using the heightened awareness of the Mad Max franchise to get the intent across a little better, but it's a dubious move—it may prove too long in the tooth by now to have any effect. Truth is, it's just coincidence.

So why draw the connection? The simple honest answer is, we couldn't resist. Too many similarities. When we found Matt Leischer and his SRT8 Chrysler 300C at the Festival of LXs in Irvine this spring, it hit us like a ton of bricks. "Mad" Matt's blown Hemi stood out from a thousand really nice but ordinary LXs as brash, ballsy, and in your face—it was a rude piece of coal atop a pile of polished diamonds. Leischer's LX is an unapologetic celebration of hot rodding in its purest form, eschewing mail-order parts delivered by clean-cut drivers in shiny trucks for Craigslist junk sold by shady guys named Guillermo with overdue child-support.

On the surface, comparison between Matt Leischer's 2006 Chrysler 300C SRT8 and Max Rockatansky's Ford Falcon XB GT might seem absurd. They're different makes, models, and years. But it turns out it's not much of a stretch at all. Everybody familiar with the Mad Max franchise—i.e. anybody with a pulse—makes the conceptual leap effortlessly. The 300's color, the GMC blower, the inherent purposefulness, its native desert environs, its overall vibe, even its counterculture owner/builder serve as a neon arrow to the original.

There is one aspect of Mad Matt's car that isn't shared with Mad Max's: This creation actually works. While the original Pursuit Special was a genius masterpiece of movie magic that made the whole movie click, the blower wasn't functional, and the car wasn't much of a true street machine. Just a toddler when the first film hit the screen, Leischer could certainly be forgiven for thinking this dream machine could be a mechanical possibility.

If you believe in such things, it was preordained that Leischer would build this car. A fabricator, mechanic, and electrical wizard with a degree in Industrial Management, he had the skill set and inclination necessary to pull it off. A heavy metal guitarist with a strong independent streak, he was certainly predisposed to thinking in a counterculture groove. A fan of the original *Mad Max* film, Matt simply had no social, marital, or mechanical impediment to building his ideal car, so he did it without second thought. Nobody told him the original movie car and blower setup was bogus (he figured that out eventually), that it had nothing spectacular in the way of performance, and that it really hadn't been driven much anywhere, so he built his 300C SRT8 with the goal of making it breathe fire, and driving it hard.

And drive it Matt did. Not only has he racked up enough miles to go around the world nearly eight times, he's done it in the improbable furnace of the Sonoran Desert—that is, when he isn't hammering out longer trips North or West through the Mojave. When we asked Matt to make the trip from Phoenix to our Los Angeles photo studio, we're ashamed to admit we thought he'd trailer the SRT8. Nope. The 800-mile trek was just another excuse for Matt to hit the highway and enjoy some quality time with his like-minded wife, Cat. (Does that make her "Mad Cat"?!)

That said, we present for your enjoyment Mad Matt Leischer and his freakishly cool, one-of-a-kind SRT8 300C. "Enjoyment," of course, is a pretty liberal term. Some will enjoy getting jealous, some will enjoy crying foul on some trivial fact (we'll cop to using a movie prop shotgun in our photo shoot), or just enjoy branding us as idiots. (Yes, we know it doesn't have the on/off blower engagement from the movie car. Tough beans.) All fine, but we suggest your best bet is to simply let Matt's story inspire you, and carry you back to your childhood dreams. Unlike a movie, we won't even ask you to suspend your disbelief, because it's the real thing.

When we first saw Matt Leischer and his blown SRT8 300C, we thought he may have taken a wrong turn on his way to Burning Man. We soon discovered that Matt built this machine himself—a feat any late-model Hemi owner who's ever gotten blindsided by technical glitches from bolt-ons can appreciate. This is Matt's world—you just live in it.

"There is one aspect of Mad Matt's car that isn't shared with Mad Max's: This creation actually works."

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MOPAR MUSCLE

BY STEVE DULCICH WITH DAVE HUGHES • PHOTOGRAPHY BY HUGHES ENGINES

SMALL-BLOCK MANIFOLD FLOW TEST

THE HORSEPOWER EXPERTS AT HUGHES ENGINES HELP US SORT OUT THE FLOW HIERARCHY OF LA-SERIES INTAKES.

When thinking about engine airflow, the common focus has always been the cylinder heads. The experts at Hughes Engines in Washington, Illinois, have been building Mopar engines and developing parts for them for well over 40 years, and their devotion to the Chrysler LA small-block dates back to its earliest days—that's why they're in the position to set the record straight about airflow. Company patriarch Dave Hughes knows it's important to address total system flow, and the flow bench at Hughes Engines will prove instructive here.

As we hinted at, guys love to brag about specs, and cylinder head cfm numbers echo the power potential of any high-performance engine. Granted, cylinder head flow, particularly on the intake side, is important, but Hughes figured out long ago there's more to power than just that. The thing that really matters is putting that flow in the context of the complete engine package. Back in the days when Hemis ruled NASCAR, there was no questioning the superior flow of the Hemi heads. NASCAR's simple solution was to curb a portion of that power potential by putting a cork in the system—restricting carb size—an approach that evolved into the dreaded restrictor plates employed to this day. The bottom line is: No matter how good your cylinder heads may be, horsepower production is going to depend on the flow of the whole system, from the air inlet to the intake valve.

This brings us to the intake manifold. These days, flow data for cylinder heads is as easy to come by as a manufacturer's catalog or a quick web search. On the other hand, manifold flow is generally a guessing game, where the overall look and bench racing scuttlebutt is about all most

guys have to go by. Depending upon your intuition and the knowledge of your bench racing buddies, your results here will vary. What is missing in the case of small-block Mopar intakes is cold hard data, showing just what kind of airflow the runners are capable of. You might presume that virtually any manifold would be capable of keeping up with the typical cylinder head port. You might be surprised to find that in many cases the manifold can, in fact, be the source of considerable restriction.

MANIFOLD DESIGN VS AIRFLOW

Before we get into manifold flow numbers, it is important to note that a manifold's performance characteristics are not simply a matter of airflow. The layout and design of the ports will play a major role in how the engine will respond. Let's look at layout first. The most common carbureted intakes come in two configurations: the dual-plane and the single-plane. Of these two, the dual-plane is by far the more complicated design, with the runners laid out in two separate horizontal planes, and crossing from one side of the engine to the other. This is the layout most commonly found on OEM engines, and there were good reasons for manufacturers to favor the two-plane.

If you look closely, the runners are actually laid out to cross over and alternate from one plane to the other in a sequence that follows the firing order. While a conventional V-8 engine fires a cylinder every 90 degrees, each side of the intake manifold feeds an intake stroke every 180 degrees of crank rotation. The manifold is providing broad pulse separation at the carburetor, improving signal, reducing exhaust gas reversion, and improving idle vacuum in the process. All of these factors contribute to better driveability and power lower in the rpm range. The other key factor is runner length. Longer runners boost torque due to the resonant tuning effect on the airstream. Naturally, since the runners on a two-plane are arranged to cross from one side of the engine to the other, the resulting runners are longer. This too improves low and mid range torque.

With all of that going for it, is the two-plane manifold always the way to go? The drawback here is that the complex path compromises runner size and shape, requiring the mixture to travel a more difficult route. The path of least resistance, and therefore maximum flow, is always a straight line, and here is where the single-plane manifold enters the equation. The runners are all routed to a common open plenum, with the path being a much straighter shot into the intake port of the head. Naturally, this is going to minimize port restriction and maximize flow. Once again, however, there are the other factors of pulse separation and runner length to consider besides raw airflow. At high rpm, the short runners actually tune in to beat a two-plane manifold in a race or very hot street powerplant, but the two-plane will almost always show an advantage in the low and mid range. From our testing, with a good two-plane intake manifold the typical 6,000-rpm street-style engine

PHOTO BY STEVE DULCICH

STOCK IRON 360 2V

SCATTER	221.0 - 248.3 CFM
SPREAD	27.3 CFM
AVERAGE	238 CFM

Test note: Hughes tested this stock two-barrel factory iron manifold as a baseline to see how far everything has come.

STOCK IRON 340 4V #3614025

SCATTER	257 - 298 CFM
SPREAD	40.8 CFM
AVERAGE	271 CFM

Test notes: This is the manifold to use on oval-track engines when the rules dictate a stock cast-iron 4BBL intake. Note that the flow is very close to the stock Edelbrock Performer.

EDELBROCK PERFORMER

SCATTER	252.9 - 296.5 CFM
SPREAD	43.6 CFM
AVERAGE	269.4 CFM

Test notes: Tested as manufactured. This Edelbrock intake comes with intake ports that are tapered down to 318 port size at the gasket surface.

EDELBROCK PERFORMER DEEP PORT MATCH

SCATTER	267.1 - 306.9 CFM
SPREAD	39.8 CFM
AVERAGE	289.4 CFM

Test notes: Edelbrock Performer deep port matched to a 360 port size.

"...horsepower production is going to depend on the flow of the whole system, from the air inlet to the intake valve."

will make more low and mid range power, while giving up little or nothing up top. Up the ante with a race-style engine turning serious rpm, and the wide-open airflow of the single-plane is the winner every time.

THE NUMBERS FROM HUGHES

All that being said, manifold airflow is still a valuable piece of information when puzzling over an engine combination, or in making comparative decisions on which manifold to choose. As Mopar engine guru, Dave Hughes, tells us, "A question that's high on the list for engine builders is: What do the heads flow? The real question should be: What do the heads and intake manifold combination flow?" Before we dig into Dave's findings and answer the burning question of what these small-block intake manifolds flow, we discussed some of his general observations and ground rules about intake manifolds. "Manifolds, like any other cast part," says Hughes, "suffer from core shift. This means that every manifold will not flow the same. They can vary up to 20 cfm or more."

EDELBROCK LD-340 SHALLOW PORT MATCH

SCATTER	279.2 - 314.1 CFM
SPREAD	35.0 CFM
AVERAGE	299.7 CFM

Test notes: This was the best 4BBL intake for small-block Mopars for many years. This particular manifold (borrowed for testing) had a port match that was only 1/2-inch deep. The flow is impressive for an ancient dual-plane, but the flow bench does not always tell the entire story.

EDELBROCK RPM

SCATTER	248.6 - 264.9
SPREAD	16.3 CFM
AVERAGE	255.9 CFM

Test notes: This intake has an excellent and well-deserved reputation and has taken the place of the LD-340. This is one of those cases where the flow bench does not tell the whole story. This manifold did not flow as much as the LD-340, but it will produce more power. Why? Look at the manifold intake runners. Notice how the port shape and runner arrangement has changed from the older LD-340 to the rpm. The runner lengths are shorter and the cross-sectional areas are more consistent from the plenum to the head. Lots of flow work and testing went into the newer intake design, which paid off in horsepower.

"Dual-planes are the most difficult to improve because two runners run low under the other runners, making them difficult to reach to do much reshaping." *–Dave Hughes*

Dave continued, "A dual-plane intake will generally have four good, high-flowing ports, two fair-flowing ports, and two that are not so good. The worst of the bunch are the three-by-two or six-pack intakes. Obviously, the single-planes should have the most equal-flowing ports. Dual-planes are the most difficult to improve because two runners run low under the other runners, making them difficult to reach to do much reshaping."

Dave then went on to explain that in his testing regime, he flows intakes at 28 inches of water with a corrected pressure drop. Then when Hughes flows intakes, he looks at three things: scatter (what the highest and lowest ports flow), spread (the flow difference between the highest and lowest flowing ports), and average (what is the average flow of all eight ports).

Here, we show Hughes Engines' numbers for each of these characteristics on a range of small-block LA-series intake manifolds. The information also includes some modified intake manifolds and the resultant change in flow. Dave concluded our discussion with a caveat: "The flow numbers do not tell the whole story. For instance, the Edelbrock Performer with the ports opened up to 360 flowed better than the higher-rise RPM manifold with no porting. What's going on? Does that mean a deep port-matched Performer will work better than an RPM without deep port matching? Maybe, but this will depend on the engine combination. The RPM, being a higher-rise style intake, will work better on a larger-displacement or higher-rpm application, although the port sizes, cross-sectional area, are essentially the same in both manifolds. Keep all these facts in mind as you search for a manifold. As usual, the dyno, track, or trial-and-error testing is the final word," says Hughes.

WEIAND ACTION PLUS (#8007)

SCATTER	242.9 - 274.3 CFM
SPREAD	31.4 CFM
AVERAGE	258.6

Test notes: This is Weiand's competitor to the Edelbrock Performer and also has 318-sized small port exits. Like the Edelbrock Performer, it will improve with a 360-sized deep port match.


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MOPAR PERFORMANCE M1 SINGLE-PLANE #P4529462

SCATTER	268 - 289 CFM
SPREAD	21.0 CFM
AVERAGE	278 CFM

Test notes: This test is of the unmodified manifold with the spread-bore carb base. The as-cast manifold has some very sharp corners and edges just below the carb flange before the top of the runners. This tends to increase fuel separation.

EDELBROCK SUPER VICTOR

SCATTER	280 - 294 CFM
SPREAD	14 CFM
AVERAGE	287 CFM

Test notes: This is Edelbrock's latest LA-Series high-rise single-plane 4BBL intake. It is 2 1/8 inches taller than the 340 Victor. This is a box-stock intake that is designed to be used with larger displacement or higher-rpm combinations.

EDELBROCK SUPER VICTOR FULL RACE PORT JOB

SCATTER	326.7 - 335.8 CFM
SPREAD	9.1 CFM
AVERAGE	330.1 CFM

Test notes: Full competition port job.

SOURCES

EDELBROCK
800-416-8628 (TECH ONLY)
WWW.EDELBROCK.COM

HUGHES ENGINES
309-745-9558
WWW.HUGHESENGINES.COM

MOPAR PERFORMANCE
WWW.MOPAR.COM

WEIAND
866-464-6553
WWW.HOLLEY.COM

EDELBROCK/MOPAR SIX PACK

SCATTER	258 - 314 CFM
SPREAD	56 CFM
AVERAGE	276 CFM

Test notes: This manifold could have either an "Edelbrock" or "Mopar Performance" logo, but they were all made by Edelbrock. These intakes, like their big-block brothers, have a lot of room for improvement. The flow can be increased on all of the ports but the spread will remain about the same in Six Pack intakes.

EDELBROCK/MOPAR SIX PACK EXPERIMENTAL PORTING

SCATTER	284 - 340 cfm
SPREAD	56 cfm
AVERAGE	294 cfm

Test notes: This is a small-block Six Pack intake with some experimental porting efforts. With the porting, we averaged an 18-cfm flow increase. This is a good increase on any intake, especially on one that is a 45-year-old design. This would make a nice looking and running manifold on a hot street 500-plus horsepower stroker.

All the testing for these LA-Series small-block intakes were performed at Hughes Engines on their flow bench. Note how each port but one is blocked off with sturdy cellfoam forms.

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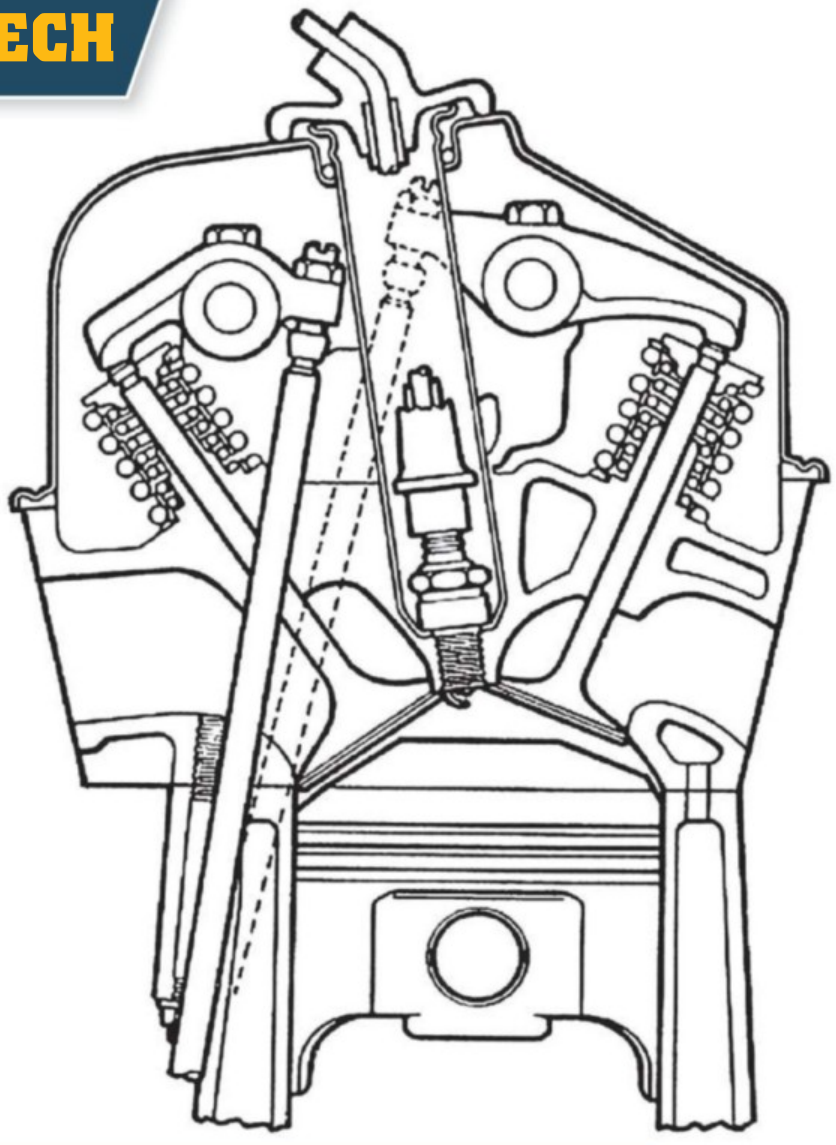

TEXT AND PHOTOS: STEVE MAGNANTE

RACE HEMI VERSUS STREET HEMI

KNOW HOW TO TELL THE DIFFERENCE BETWEEN GEN II HEMIS WITH THESE EASY ID TIPS.

Have you ever wondered why Race Hemis take different rocker cover gaskets than Street Hemis? Beyond that, their cylinder heads and rocker covers are also different—there's no mixing or matching allowed. What gives? Before we dig in, let's define some terminology. Back in early 1963 when development of the 426 Hemi first began, Tom Hoover, Willem Weertman, and the rest of the design team envisioned two versions of the engine. The first carried a single Holley four-barrel carburetor and was intended for use on NASCAR stock car tracks. This engine was initially designated the Track Hemi, and its mission, straight from the mouth of Chrysler President Lynn Townsend, was to win the 1964 Daytona 500.

"...its mission, straight from the mouth of Chrysler President Lynn Townsend, was to win the 1964 Daytona 500."

At the same time, another version of the same basic long-block wearing a cross-ram intake manifold and twin Carter AFBs was under development for drag racing. This variant was dubbed the Race Hemi within Chrysler Corporation. The Track Hemi's public debut took place in February 1964 with an amazing 1-2-3-4 victory sweep at the Daytona 500, with Richard Petty's blue No. 43 Plymouth leading the pack. A few months later, the first Race Hemis began hitting dragstrips in April of 1964 with impressive results. OK, that covers the Track Hemi and the Race Hemi. Have you noticed we haven't yet mentioned the Street Hemi?

That's because the 426 Hemi design team had no intention of ever making a street version. The dome-head wonder mill was intended to be an off-road competition engine and nothing else. But after its headline-grabbing 1-2-3-4 victory sweep at the 1964 Daytona 500, NASCAR revised its rules for 1965 to specifically exclude non-production line engines. No doubt a fair amount of lobbying from Ford motivated NASCAR's actions. Facing mass production of this heavy, complex powerplant, Chrysler could have snuffed the Hemi program then and there. Instead, they'd tasted victory and wanted more.

So Chrysler set to work and a de-tuned version of the 426 arrived for 1966 with mild cam timing, reduced compression, iron exhaust manifolds, and a dual-plane aluminum intake manifold with tandem Carter AFBs. The Street Hemi was born. Other visual changes included a switch from chrome-plated rocker covers to black wrinkle paint. The light-absorbing quality of the textured black rocker covers accentuated the sheer width, giving it the look of an elephant, a nickname that's stuck ever since. Also, the vivid orange paint that had coated every Max Wedge and Race Hemi was given an extra shot of yellow for a warmer

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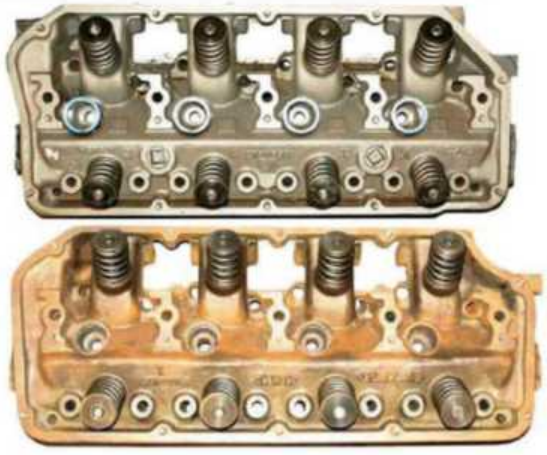

At the top is a typical ’66-up A102 426 Street Hemi head. Below is a 1964 A864 Race Hemi head. Note the difference in the left-hand end of each head. The curved end of the Street Hemi casting was likely added to allow optional power steering. Gen II (and Gen I) Hemi heads are interchangeable from side to side on the block. Modern Gen III Hemi heads are not.

It may not look like much, but the curved area added to the Street Hemi rocker cover (bottom) was required to clear the filler neck and upper body of the Chrysler power steering pump.

In 1965 Chrysler switched to aluminum for the A990 Race Hemi, using Alcoa-supplied castings that shaved weight from 75 to 40 pounds per head. Besides weight and 2.23-inch diameter intake valves for seat insert clearance, the ’65 heads are functionally identical to the iron ’64 castings. Both are referred to as Race Hemi heads. The chromed rocker cover shown is correct for all Race Hemis.

Race Hemi rocker covers will fit the Street Hemi stud pattern (*left*) but no amount of RTV will seal the 1/2-inch gap and massive oil leakage will result.

feel that was dubbed Street Hemi Orange.

Happily, Chrysler didn’t alter the ports, combustion chambers, huge 2.25-/1.94-inch valve heads, or any other meaningful detail during the transition from Race to Street. This is why any Street Hemi is just a cam swap and headers away from being race ready. But what about the general shape of the heads and rocker covers? This is where we’ll go on a limb and conclude that the most glaring contour change—the curved contour added to the left-hand end of the Street Hemi head—was added to allow for power steering.

Keep in mind, after sitting out the 1965 superspeedway race season as the Street Hemi was under development, Chrysler wanted to return with a splash for 1966. Rather than play games and build just the bare minimum required by NASCAR rules (500 cars), a total of 2,729 Street Hemis were unleashed in that debut year. With 720 pounds of elephant at the other end of the steering column, Chrysler product planners knew they’d lose a significant chunk of potential customers if power steering wasn’t offered. This was a big shift in thinking, as none of the previous ’62-’64 Max Wedge or ’64-’65 Race Hemi vehicles offered power assist. Chrysler must have envisioned much greater production volume for the street version.

But when the first power steering units were mocked up next to unaltered Race Hemi heads in 1965, it was surely noted that the pump body and fill tube made contact. Redesigning the pump or stamping revised drive pulleys may have been considered. But in the end, the heads were massaged to suit the existing pumps and pulleys. Lacking exact figures, we’ve seen enough original Street Hemi cars to say that roughly 40 percent came with power steering. It’s a pretty common thing.

To bring this interesting bit of Hemi history to light, we rounded up ’64 Race Hemi and ’69 Street Hemi heads and rocker covers to compare the differences. Check the photos and draw your own conclusions. Also, let’s hope this expose alerts the many ’64 and ’65 Race Hemi

“...the 426 Hemi design team had no intention of ever making a street version.”

clone builders and restorers to the fact they've got some hunting to do if they really want to get it right. Better still, perhaps we'll trigger the aftermarket to reproduce straight-end Race Hemi heads and rocker covers. It's an area of the Hemi market that hasn't been served since 1965. If nothing else, there's a real need for fresh Race Hemi rocker cover gaskets. Right now, the only choice is a NOS cork item, which is typically dried up and leaky. Let's explore.

The Street Hemi's curved end adds needed pump clearance as seen on this unrestored '70 Hemi 'Cuda. The enlarged spark plug tube cover was added to the Street Hemi to repel water. These wires are incorrect on any Race Hemi (except '67 RO/WO and '68 Hurst A-Body). Original Race Hemi plug boots use smaller, straight boots.

Another difference is the contour found at the top right-hand corner of each rocker cover, head, and gasket. The Race Hemi rocker cover (bottom) is curved where the Street Hemi has a straight edge. Some speculate the curve was intended for magneto clearance but magnetos fit either configuration with room to spare.

The bottom right-hand corner of the rocker cover, head, and gasket also differs. Race Hemi (*top*) is stamped with a straight edge. The Street Hemi (finger) got a notch in this location plus a tab to help secure the cork gasket during installation.

Inside, the same stamped steel oil fill/breather baffle plate was shared between Race and Street Hemis alike. The hand-brazed unions (foreground) may be repairs or a sign this 1964 unit is especially early.

"...Chrysler set to work and a de-tuned version of the 426 arrived for 1966..."

This recessed area is common to all Race Hemi rocker covers. It is not there for dipstick clearance or any other obvious purpose. By contrast, the Street Hemi rocker cover (bottom) is not indented at this location. Correct Race Hemi B-Body restos and clones must use the recess-style rocker covers, few today do, so they're rare and ripe for reproduction.

The finger points to another major change made to Street Hemi rocker covers. This low spot may have been added to increase room for fingertips during PS pump cap removal. Race Hemi covers lack this stepped surface. The oil fill tubes are identical.

The spark plug tube recesses differ slightly. Race Hemi (bottom) has more rounded and slightly deeper contours. Spark plug tubes differ slightly in top flange configuration but are interchangeable.

GEN II HEMI PRODUCTION TOTALS

RACE HEMI	
1964 A864 IRON-HEAD TRACK AND RACE HEMI	271
1965 A990 ALUMINUM-HEAD RACE HEMI*	477
STREET HEMI:**	
1966-1971 STREET-LEGAL PASSENGER CARS	9,845
1967 RO23/WO23 B-BODY MODIFIED STREET HEMI	110
1968 BO29/LO23 A-BODY MODIFIED STREET HEMI	150

*202 assembled cars and 158 crate engines and sub-assemblies for service, race, and marine

**Street Hemi total does not include the output of modern Mopar Performance 426, 472, 528, and 572 crate engines. All of the modern era crate engines, as well as aftermarket aluminum Hemi heads, follow the Street Hemi's curved end and take Street Hemi rocker cover gaskets.

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$19.99 REG. PRICE $59.99

41169721

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SUPER COUPON

PITTSBURGH

2 TON FOLDABLE SHOP CRANE

LOT 60388
69514 shown

$179.99 ~~$229.99~~

SAVE $120

- Includes Ram, Hook and Chain

REG. PRICE $299.99

41160492

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SUPER COUPON

SAVE $45

20 GALLON PARTS WASHER WITH PUMP

CENTRAL MACHINERY

LOT 60769/94702/7340 shown

$84.99 REG. PRICE $129.99

41203947

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WOW SUPER COUPON

Customer Rating ★★★★★

44", 13 DRAWER INDUSTRIAL QUALITY ROLLER CABINET

US GENERAL PRO

- Weighs 245 lbs.

LOT 68784 shown
69387/62270
62591/62744

SAVE $330

$369.99 REG. PRICE $699.99

AWARD WINNING QUALITY

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41250986

SUPER COUPON

FREE

WITH ANY PURCHASE

PITTSBURGH

1" x 25 FT. TAPE MEASURE

LOT 69080 shown
69030/69031

$6.99 VALUE

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41257501

SUPER COUPON

1/2" INDUSTRIAL QUALITY SUPER HIGH TORQUE IMPACT WRENCH

- 700 ft. lbs. Max. Torque

LOT 62627/2623
68424 shown

SAVE $55

$74.99 REG. PRICE $129.99

41214510

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SUPER COUPON

2 PIECE VEHICLE WHEEL DOLLIES

- 1500 lb. Capacity

LOT 60343
67338 shown

SAVE 37%

$49.99 REG. PRICE $79.99

PITTSBURGH

41229378

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SUPER COUPON

29 PIECE TITANIUM NITRIDE COATED HIGH SPEED STEEL DRILL BIT SET

NEW

WARRIOR

LOT 5889/62281/61637 shown

SAVE 60%

$9.99 REG. PRICE $24.99

41241232

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WOW SUPER COUPON

12 TON SHOP PRESS

CENTRAL MACHINERY

- Pair of Arbor Plates Included

SAVE $100

LOT 33497/60604 shown

$99.99 REG. PRICE $199.99

41257335

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WOW SUPER COUPON

10 FT. x 20 FT. PORTABLE CAR CANOPY

LOT 60728
69034 shown

SAVE OVER $90

~~$199.99~~ REG. PRICE $199.99

41206274

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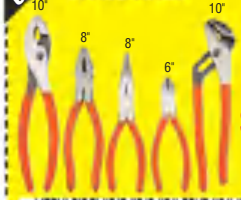
SUPER COUPON

5 PIECE PLIERS SET

PITTSBURGH

LOT 69352/69351 shown
69353/62597/62598



SAVE 55%

$8.99 REG. PRICE $19.99

41220276

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SUPER COUPON

MECHANIC'S SHOP TOWELS PACK OF 50

SAVE 50%

LOT 46163 shown
68442/69649
61878/61837

~~$19.99~~ $9.99 REG. PRICE $19.99

41227792

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SUPER COUPON

4-1/2" ANGLE GRINDER

drillmaster

LOT 60625 shown
95578/69645

SAVE 50%

$9.99 REG. PRICE $19.99

41231620

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SUPER COUPON

PITTSBURGH

2000 LB. FOLDABLE ENGINE STAND

LOT 69522 shown
69521/67015

SAVE $50

$109.99 REG. PRICE $159.99

41232085

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SUPER COUPON

110 LB. PRESSURIZED ABRASIVE BLASTER

SAVE $150

CENTRAL PNEUMATIC

LOT 69724/95014
60696 shown

$99.99 REG. PRICE $249.99

41230418

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SUPER COUPON

NEW

CENTRAL PNEUMATIC

20 OZ. PROFESSIONAL HVLP GRAVITY FEED AIR SPRAY GUN (600 CC)

SAVE 40%

LOT 68843

$47.99 REG. PRICE $79.99

41209681

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SUPER COUPON

RETRACTABLE AIR HOSE REEL WITH 3/8" x 50 FT. HOSE

LOT 93897 shown
69265/62344

SAVE $90

$59.99 REG. PRICE $149.99

CENTRAL PNEUMATIC

41219702

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SUPER COUPON

PITTSBURGH

1000 LB. CAPACITY MOTORCYCLE LIFT

SAVE $400

- Height Range: 7" - 30"

LOT 69904
68892 shown

$299.99 REG. PRICE $699.99

41223056

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SUPER COUPON

CENTECH

AUTOMATIC BATTERY FLOAT CHARGER

LOT 42292 shown
69594/69955

SAVE 70%

$5.99 REG. PRICE $19.99

41258125

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BY JOHNNY HUNKINS & DAN FOLEY • PHOTOGRAPHY BY DAN FOLEY

FURIOUS FIREPOWER!

A ONE-WIRE DUI IGNITION CAN PROVIDE YOUR MOPAR MEGA FIREPOWER WITHOUT A WIRING HARNESS, CD BOX, OR EXTERNAL COIL.

When we first met Steve Davis, owner of Performance Distributors, we knew immediately that he was an out-of-the-box thinker. That's a pretty common characteristic among successful entrepreneurs, but it's not as common as you might think in the hot rodding world. In a hobby where its members lose sleep over date-coded blocks, factory chalk marks, paint codes, and broadcast sheets, putting a GM-style ignition system in one of Ma Mopar's blessed creations ranks right up there with heresy. And we understand that. It's critical for the sake of posterity that we as a hobby maintain a historically accurate fleet of restored vehicles for future generations.

Nevertheless, Davis identified early on that GM's High Energy Ignition (HEI)—which first appeared in new cars at the end of 1974—was unique among OE ignition systems. Simply put, the HEI was unusually robust, it produced a hefty output, and didn't suffer the reliability or durability problems of its Chrysler and Ford peers. HEIs lasted forever and always worked. When they did break, the HEI's electronic module was extremely easy to source, and simple to replace. A quarter century after GM installed the last unit in a new car, you can still go to any corner parts store and buy a stock HEI, coil, or module for a GM engine—that's a low-odds crapshoot for a same-vintage Mopar or Ford.

The HEI also had a built-in coil, which made installation and wiring a snap.

"...the HEI was unusually robust, it produced a hefty output, and didn't suffer the reliability or durability problems of its Chrysler and Ford peers."

Several years ago, Performance Distributors' DUI distributor became one of our go-to ignitions after dyno testing showed it to produce more power than a more expensive CD ignition box system. With only one 12-volt wire to fire the DUI, it's one of the easiest and most effective ignition upgrades you can make to your Mopar.

The new DUI unit features upper and lower bushings for no shaft wobble—a well-known issue with the stock distributor. The DUI is a complete one-piece ignition system, with the ignition module, coil, and everything else located all in the distributor. It eliminates the need for a wiring harness, a CD spark box, and the external coil. So far, all the DUI systems we've installed have been bulletproof.

Moreover, the HEI module's expanding dwell function meant that up to about 3,000 rpm, the coil's saturation time was increased to provide a corresponding increase in spark output. If you guess that the HEI design might make the basis for a great aftermarket ignition system for Chrysler powerplants, then you have something in common with Davis and the rest of the crew at Performance Distributors.

In adapting GM's HEI to the family of Chrysler engines, Performance Distributors took the opportunity to further refine the design (now called David Unified Ignition or DUI for short). Davis improved the ignition module (called a Dyna-Mod module), upping the coil saturated

On top of the DUI's shaft plate is the mechanical advance weights and springs. Each distributor is custom tuned on a distributor machine for a smooth advance curve matched to your combination (cam, compression, intake, carb, exhaust, gearing, etc.). The new casting has no shaft wobble, and ensures precise timing at the pickup and reluctor wheel.

Our healthy 416ci LA stroker combo has 11.2:1 compression and doesn't need any additional timing from a vacuum advance unit. In its place is an adjustable Instant Timing Knob, an available option on any DUI. This knob allows you to change the timing without loosening with the distributor hold-down clamp and bolt. One turn is equivalent to two degrees of timing. The small-block DUI distributor with instant timing knob is PN ITK708212, street price $525.

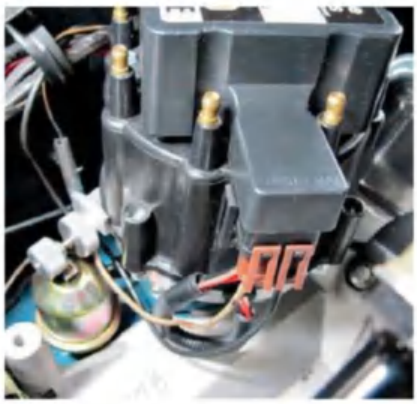
Each DUI receives an ID number that is etched to the bottom of the distributor. If a future cam swap or other changes happen, you can call Performance Distributors' tech line with your ID number. They will pull your specs to discuss whether or not you'll need to change your advance curve.

This DUI Racing Coil kit (PN 121000, $89) is made from resin and offers 50 percent higher dielectric strength with all-brass terminals for maximum conductivity. The burn-through—resistant rotor features nylon hold-down screws to eliminate a ground for voltage to jump at high rpm. Wider spacing between terminals reduces spark scatter from the 50,000-volt coil located inside the cap. Caps are available in black, blue, red, yellow, or clear.

to 7,000 rpm on street applications, and 10,000 rpm with DUI's race coil. The DUI street coil itself now puts out a staggering 50,000 volts, yet only draws 2 to 3 amps—less than half of what a stand-alone CD ignition with a separate coil draws. Of course, the DUI's shaft and housing itself are vastly improved over GM's built-for-a-price OE system. Finally, Performance Distributors DUI ignitions are Chrysler-specific designs that are 100 percent American made, meaning they drop right in and run perfect every time with no modification. Moreover, lots of options abound, such as Performance Distributors' 18-volt upgrade (Mini-VIP), add-on rev-limiter, Performance Distributors indestructible Livewires ignition wires, and even an Instant Timing Knob upgrade.

When building our '73 Dodge Challenger, we knew from the start that we wanted to take advantage of all the low-hanging fruit that would help us maximize the power of our stroked small-block, and a full boat of Performance Distributors ignition equipment was a no-brainer to make that happen. Unless you are a purist striving for a period-correct restoration, we think a DUI ignition makes a lot of sense, whether you're building a hot street car with a breathed-on engine, or an 800hp weekend racer that needs to fire off and run consistently pass after pass. Let's take a closer look…

This Performance Distributors Dyna-Mod module (PN 000222, $49) has more electronic dwell to provide added coil saturation time, which means more voltage and power at high rpm. Any four-pin '74-'90 GM HEI module will work in an emergency situation and is readily available at any auto parts store, just don't expect the performance of the Dyna-Mod.



These tan-colored plastic insulators with brass terminals are included with the DUI unit. We used the original tach-wire (tan) to hook up the factory tachometer via the tach connection. A 12-gauge wire (black) was used to power the DUI (battery connection). The power wire was connected to a fuse that lit our test light when the ignition key was held in the cranking position. It's that easy to have a DUI ignition system in your car.

Performance Distributors' Livewires (LA engine with TTI Headers, PN C9064-TTI, $99.00) feature unique heat-resistant sleeves (1,400 degrees) that are non-flammable and noncorrosive. A spiral-wound core prevents electronic interference with low Ohms-per-foot for optimum spark travel. We opted for these cool-looking billet aluminum wire looms (PN 9100, MSRP $69). Livewires are available in silver, black, blue, red, purple, or yellow.

In the glove compartment of the Slick Challenger, we hid the DUI Rev Limiter (PN 380777, MSRP $145). It's easier to set the rpm limit by changing plug-in modules (chips) rather than pulling off the distributor cap and trying to adjust a tiny rotary dial on a rev-limiter ignition module.

We'll be adding this Mini-VIP 18-volt step-up regulator (PN 5577, $249) to our DUI when we dyno tune the Challenger. The Mini-VIP sends 18 volts to the ignition, thus adding voltage to the plugs for a smoother, cleaner, stronger running engine. In previous testing the Mini-VIP added six more horsepower to the wheels of a '67 Coronet R/T with a 493 Wedge.

Here's the look of serious firepower (DUI with Livewires) to amplify the LA stroker 416 in our project. Keeping it simple, we left the stock ignition box and wiring in place with the positive and negative coil wires sealed-off with electrical tape.

The DUI big-block ignition and Livewires in the coauthor's '67 R/T has been trouble-free since 2003. The Mini-VIP has been on the firewall in place of the stock ballast resistor since 2008. We love the clean, smooth appearance of the engine compartment without a CD box, wiring, and external coil.

SOURCES

PERFORMANCE DISTRIBUTORS
901-396-5782
WWW.PERFORMANCEDISTRIBUTORS.COM

Not all Mopars can benefit from the DUI system. Small-block A-Bodies have a firewall interference issue, while some big-block and Gen II Hemi DUI applications have hood and valve cover clearance issues. That's when the Tri-Power Ignition (small-block A-Body pictured, PN 71120, $309) comes into play. The Tri-Power ignition also eliminates the need for a spark box. The included Inferno coil works with the same Dyna-Mod module as in the DUI for a stronger spark at all rpm.

BY CHRISTOPHER CAMPBELL • PHOTOGRAPHY BY JOHNNY HUNKINS

15 THINGS YOU DIDN'T KNOW ABOUT PERFORMANCE PAGES

WE SHOW YOU HOW TO GET THE MOST OUT OF YOUR SRT HELLCAT OR 6.4L DODGE SCAT PACK.

In 2015, it's just not enough that today's factory hot rods are the fastest, most efficient performers in history. We are a gadget-driven society, so it's now a requirement that our muscle cars also be on the cutting edge of technology and entertainment. Dodge has seen the change in the customer landscape; it's a youth-oriented culture driven by high technology and connectivity, so SRT has taken the lead by integrating performance, technology, and entertainment with the touch of your finger in something called uConnect. On the performance side of that, the star of the show is Performance Pages.

Found under the tabs "SRT Drive Modes" and "Performance Pages" in the central dash LCD, this amazing tool does what tens of thousands of dollars in professional data-logging equipment used to do. Not only that, Performance Pages makes racing your new Dodge SRT or Scat Pack easy and fun, should you take the time to learn about it. Moreover, Performance Pages allows you to make factory-authorized changes to specific parameters of the vehicle's performance without voiding the warranty—something we could only dream about a few years ago. Reprogramming your SRT or Scat Pack to behave like a completely different animal is just a few button pushes away.

With the new driver-oriented dash layout and SRT Drive Modes and Performance Pages at the touch of your finger to refine the driving experience, you can basically have three cars in one. We spent a couple of days with a Challenger Hellcat to see how everything worked in the real world.

This is the main menu screen for all the performance-related features. The top two buttons are the ones we're concerned with here for this test since they can significantly alter the car's performance.

SRT DRIVE MODES

THE LOWDOWN:
This is the page that can completely change the attitude of your car in every way: engine, trans, shocks, traction control, steering feel, and braking (via traction control). Four levels are preinstalled: Track, Sport, Custom, and Default. The areas highlighted in red are the parts tuned in some way via the mode choice. Sport turns orange, and is basically a 75 percent version of Track Mode. Default is essentially a street mode with all parts highlighted in yellow. This would be the comfortable road trip setting.

WHAT YOU DIDN'T KNOW:
Track mode was actually created on a racetrack and uses traction control to aid the driver coming harder out of a corner without wheelspin. Sport mode actually turns Traction Control off wheelspin-wise, but maintains yaw and braking control. Steering Adjustment is available on the 6.4, but not the Hellcat.
Also, our own testing showed that Track isn't necessarily the best mode to use; it all depends on your course, the speeds, the surface, and your own driving style. Luckily, you aren't married to any one setting.

DEFAULT DRIVE MODE

THE LOWDOWN:
This is the Drive Mode that the car will start with automatically every time. It will arrive with these settings, assuming you are using the 707hp red key, of course.

WHAT YOU DIDN'T KNOW:
You can actually set Default Mode to be anything you want it to be, including "Track," without having to go in and select it each time you crank. Custom Mode is similar, though we would use this for specific road or track condition settings.

RACE OPTIONS SCREEN

THE LOWDOWN:
This is the page that allows you to activate Launch Control and set the engine rpm. You can also set the Shift Light rpm from here.

WHAT YOU DIDN'T KNOW:
The launch is optimized for traction/wheel spin balance. Our testing has shown it to deliver quicker and more consistent 60-foot times in most cases than manual launching, especially on street tires.

SHIFT LIGHT RPM

THE LOWDOWN:
RPM on the Hellcat climbs quickly, so if you have a manual, or choose to manually shift the automatic via the shifter or paddles, the shift light hidden in the dash will help you focus on the track rather than glancing down at the tach.

WHAT YOU DIDN'T KNOW:
It may be an eight-speed automatic, but Fifth through Eighth gears are grouped together for shift light rpm on the 6.4 Scat Pack. Also, you only get up to Sixth on the Hellcat.

LAUNCH CONTROL RPM

THE LOWDOWN:
Launch Control allows you to choose what rpm the engine holds itself at while staging. You simply hold the accelerator pedal to the floor and the engine will hold rpm until you release the clutch (manual) or brake pedal (automatic).

WHAT YOU DIDN'T KNOW:
The launch rpm limits are selectable, but will vary between the automatic transmission (1,500-3,500 rpm) and manual transmission (2,000-4,500 rpm). Also, Launch Control is only available after 500 miles of driving. To set rpm, just touch and drag the rpm bar to the desired level.

CENTER STACK BUTTONS

THE LOWDOWN:
The Launch, SRT, and Traction Control buttons are page shortcuts located on the center console for all of the important performance-altering settings.

WHAT YOU DIDN'T KNOW:
The SRT Driving Mode will take the central LCD directly to the screen that allows you to choose, then customize the drive modes. Launch Mode will arm the system with your preset rpm setting. Traction control can be toggled through Street, Sport, and Track, or fully turned off by holding the button down for five seconds.

GAUGES—PAGE ONE

THE LOWDOWN:
You'll never need to add custom gauges to your SRT; everything is monitored through Performance Pages, and the readouts are accurate and real-time.

WHAT YOU DIDN'T KNOW:
The 6.4 Scat Pack and supercharged 6.2 have different gauge arrays per page. Page 1 on a 6.4 Scat Pack will show coolant temp, oil temp, and oil pressure, while the Hellcat will show coolant temp, oil pressure, oil temp, battery voltage, and trans oil temp (automatic only).

GAUGES—PAGE TWO

THE LOWDOWN:
Page Two is a continuation of the gauge array.

WHAT YOU DIDN'T KNOW:
This page differs between the 6.4 Scat Pack and the 6.2 Hellcat as well. The 6.4 Scat Pack page shows battery voltage, intake air temp, and trans temperature (automatic only), while the Hellcat will show boost pressure, air/fuel ratio, intercooler coolant temp, and intake air temp.

TIME SLIP TICKET

THE LOWDOWN:
This is your one-spot viewing of all the performance data. You can judge how well you are driving, and how well the vehicle settings you have selected are working for the track or conditions.

WHAT YOU DIDN'T KNOW:
Pressing the "Save" button will let you save the last run. Timeslip tickets can be downloaded and saved to a USB jump drive or SD card via the two ports in the center console. The "uConnect" button will save the runs to the Owner web page, but any saved runs over 10 will overwrite the last saved run in the uConnect system storage.

LAP HISTORY

THE LOWDOWN:
This screen displays the lap history, and will color highlight the time that is the best time from the Timer Page.

WHAT YOU DIDN'T KNOW:
Each time the driver presses the "OK" button (while on the Lap Timer page) the current Lap Time populates the first spot and the rest of the data shifts down.

LAP TIMER

THE LOWDOWN:
When selected, the Lap Timer page will show the timer always at 0:00.00 with the previous Best and Last time data, unless it has been cleared.

WHAT YOU DIDN'T KNOW:
The lap timer is manual stop/start only, like a digital stopwatch. It's accurate, but really hard to stop at just the right moment to catch small time improvements. If you want GPS-accurate lap times, you'll still need hardware from Auto Meter, Racepak, or a cellphone app for that.

G-METER

THE LOWDOWN:
This meter displays Lateral and Longitudinal g-forces in both current and best.

WHAT YOU DIDN'T KNOW:
A stock Hellcat can easily pull 1.15g lateral. We did it after this photo, which shows 1.10, and we're sure there's a bit more left. The Steering Wheel Angle uses the steering angle sensor to measure the degree of the steering wheel relative to zero. When the steering angle value is negative, this indicates a turn to the left, and when the steering angle value is positive, a turn to the right.

DRAGSTRIP TIMER

THE LOWDOWN:
This screen displays the time it takes the vehicle to travel the quarter- or eighth-mile within 25 seconds, and the vehicle's speed when it reaches the eighth- or quarter-mile point (201 or 402 meters, respectively).

WHAT YOU DIDN'T KNOW:
The timer will be "ready" when the vehicle is at 0 mph, and the word "READY" will flash in the LCD display between the gauges. Dashes will display if you fail to reach the quarter-mile in less than 25 seconds. We doubt you'll ever see this, though.

BRAKE DISTANCE METER

THE LOWDOWN:
SRT knows that speed is useless without equally good brakes, so in addition to 0-60, you can also test 60-0 stops.

WHAT YOU DIDN'T KNOW:
The SRT Brembo brake package adds the most aggressive brakes equipped on any muscle car: 15.4-inch discs with six-piston calipers in front, and 13.8-inch discs with four-piston calipers in the rear. These can haul the Hellcat down from 60-0 in a verified 109 foot.

OIL LIFE METER

THE LOWDOWN:
Besides performance stats, the center data center has useful things like engine self-diagnostics, and oil life.

WHAT YOU DIDN'T KNOW:
The engine oil change indicator system is duty-cycle based, which means the engine oil change interval will fluctuate, depending upon your personal driving style. If you've got a heavy foot, if you've been drag racing, or doing track days, the oil life will drop accordingly.

RRC Fabrication & Speed in Montclair, California, is well versed at replacing sheetmetal in vintage cars. RRC's Scott Ethridge and Andrew Repp handled the AMD floorpan replacement in our '68 Plymouth Valiant.

TEXT AND PHOTOS: JOHNNY HUNKINS

FLOORPAN REPLACEMENT

MOPARS PRESENT A SPECIAL CHALLENGE WHEN REPLACING FLOORPANS, BUT AMD HAS YOU COVERED WITH THEIR FACTORY-FIT DESIGN.

It may be self-evident to Mopar collectors now that A-Body floorpans have a penchant for rusting out, but it was nothing close to obvious when Chrysler's compact A-Body debuted in 1963, then was redesigned for 1967. At its inception, the A-Body's boxed and welded unit-body construction was—and still remains—one of the most robust frame-less compact vehicles ever made, but there was no way to look into a crystal ball and see the future ravages of rust deep into the 21st century.

The confluence of events that make an A-Body floorpan replacement so problematic to begin with is the fact that the A-Body is so doggone strong. Unlike a GM unibody of the same era (Camaro, Nova, etc.), the Dodge Dart and Plymouth Valiant/Barracuda had a significantly boxed subframe structure with a lot of inherent torsional rigidity. This complicates the replacement process because there are a lot of welds to cut out, then reestablish when new sheetmetal is installed. Replacing the floorpan on a comparable GM compact involves half the welding, if that. (We'll point out that a Nova, for instance, would also have half the strength too.)

The arrow through the heart for the A-Body floorpan ironically isn't the OE floorpan, its design, or its materials, but the ineffective OE windshield wiper gaskets. These "insignificant" items provide a handy pathway for copious moisture to gain admission into the interior. Once inside, water hugs the firewall and migrates to the lowest point possible—the floorpan. Soaked into the spongelike carpet underlayment, the water is unable to evaporate, and grows its insidious cancer, hidden from view for years. Even in dry climates (our Valiant spent decades in California's high desert), floorpan rust is inevitable—but if you love your Mopar it's got to be dealt with properly at some point.

Our '68 Plymouth Valiant was fortunate in that it had very little rust when we got it. It did not, however, escape entirely unscathed. Over the years, the carpet underlayment had sequestered enough moisture to create a modest layer of surface scale. Moreover, the passenger-side

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footwell had rusted completely through, and one of the car's previous owners had opted to cobble a quick repair consisting of a thin layer of sheet steel screwed to the floor, then covered with carpet. When you consider the utilitarian nature of a slant-six Valiant and their historically low value, this car is actually one of the lucky ones in the sense that its owner cared enough to even fix it temporarily. Nevertheless, our goal here was to fix it permanently, and for that we turned to Auto Metal Direct (AMD), Eastwood, and the muscle car experts at RRC Fabrication & Speed in Montclair, California.

We discovered that while it sure remains a tedious job, it's well within the capabilities of the handy home mechanic with modest tools and a MIG welder. Making it easier is the fact that AMD panels are exact copies of the OE metal, meaning they fit just right every time. Best of all, it can be done in a weekend, provided you've got everything on hand at the onset. Here, we'll help you with that, and show you the highlights of A-Body floorpan replacement.

AMD make a passenger-side floorpan for the '67-up, 108-inch wheelbase version of the A-Body ('67-'71 Valiant, '71-'72 Demon, '73-'74 Dart Sport, '67-'69 Barracuda, '70-'74 Duster) as PN. 405-1267-R, $179.99. We plan on using just the front portion. Here, RRC's Scott Ethridge uses a plasma cutter to cut the pan in half, making the iterative fitment process easier.

This is what RRC started with—a floor ravaged by unseen moisture hidden for years below the original carpet. We got lucky in that our driver side was able to be salvaged with Rust Converter from Eastwood.

Before trimming out the AMD replacement floorpan, it's necessary to cut out the cancer in the affected area. The juncture of the torsion bar crossmember, front subframe, firewall, firewall bulkhead, aftermarket weld-in subframe connectors, and floorpan all come together here to create a vault-like box. This makes the A-Body incredibly strong, but very difficult to work on.

The first thing the RRC guys said when they laid the AMD pan in place was: "wow, this thing fits like a glove." They've used competing sheetmetal products, but none have fit this nice. One of the first moves is to scribe the outline of the new piece onto the existing floor—this way you won't over extend your cut beyond the new metal.

You'll want to define the final shape of the new floorpan by scribing the usable portion of the OE floor (marked by the inside margin of the yellow tape). This region follows the rear edge of the torsion bar crossmember, the trans tunnel just below our shifter cable pass-through, and along the terminating edge of the firewall where it meets the firewall bulkhead. Once that area is defined, the hard work of knocking out the old pan begins. A hammer and chisel will be a part of the process, and if the rust isn't too bad, you may even be able to see the factory spot welds well enough to drill them out.

The old floorpan is cut away with a cut-off wheel along the kickpanel and rocker panel where it meets the subframe. The remainder of the old pan is chiseled off, and again, this is aided by drilling out spot welds where they can be easily seen. Removing the old pan is by far the most labor-intensive part of the job, and it pays to sweat the details here.

Down below, you want to drill two or three locating holes. These can go anywhere on a crossmember or bulkhead flange where the new pan and the OE frame meet. This happens at a point where you're midway through refining the shape of the new pan, and the opening for it.

"Even in dry climates, floorpan rust is inevitable—but if you love your Mopar it's got to be dealt with properly at some point."

Getting the floor and the pan shape to match up is critical, and you'll need to remove the pan often to trim both the pan and the opening. You can use Clecos (*top*), screw-in Clecos (*foreground*), or sheetmetal screws to do the job. These fit into the locating holes we just drilled. A Cleco is a temporary fastener that has a central pin that spreads the outer edges when forced down. Anybody who does occasional fab work should have a half dozen of these inexpensive tools around the garage.

With the new pan firmly mounted in place with the Clecos (note the small pin, left), scribe the boundaries of the subframe, crossmember, rocker panel, and firewall bulkhead on the bottom of the pan. This will inform you where to drill or punch holes for spot welding.

A variety of methods can be used to cut new sheetmetal, including a plasma cutter, cutoff wheel, reciprocating saw, pneumatic nibbler tool, or as shown, a pair of tin snips. Note that shears come in left-hand and right-hand variants, each being optimized to eject the waste metal on the appropriate side. Eastwood sells these in sets as PN 70270, $24.99. The idea is to creep up on the shape of the patch panel gradually, not cut all the excess off at once, and risk ruining the panel.

A hole punch like this one is available from Eastwood (PN 20145, $34.99) and is needed to make a series of ¼-inch holes along the periphery of the panel for spot welds. These holes should be roughly 1.5 to 2 inches apart. You'll need to use a drill to create the spot weld holes in the interior of the panel where it meets the subframe and crossmember flange.

Before MIG welding the panel, you'll need to grind away the electrostatically deposited epoxy coating in the weld zones to get the best weld penetration and zero weld oxidation.

Here's our AMD panel just prior to welding. Note a couple of things here: first, see how well this AMD panel (an officially licensed Mopar Authentic Restoration Product) matches the factory shape. Also, notice how the panel is trimmed right to the trailing edge of the torsion bar crossmember. Besides the removal of the old metal, getting the shape of the new panel just perfect is where you'll spend most of your time.

Welding the pan to the car is straightforward. By this point, you will have carefully ground all weld areas on the car down to bare metal, disconnected the battery, and secured all flammables. You want to set your MIG welder up for a lower power setting initially to avoid accidentally blowing through the thin metal, then power up gradually. Here, Scott Ethridge of RRC uses the handle of a hammer to push down near the spot weld hole to butt the two surfaces together for welding.

Now that we've got sound floors in the Valiant, we can tackle other pressing jobs from the ground up, like sound insulation, new carpet, seat upholstery, door panels, dashpad, a factory-look Retro-Sound sound system, a rehabbed instrument panel from Instrument Specialties, and new headliner.

After all the spot welds are done, you'll need to grind them flat. A 4.5-inch flap disc like this is available from Eastwood for $3.99, which is used on a 4.5-inch electric angle grinder. Note that besides the spot welds, a series of tack welds was made where the AMD panel butts against factory sheetmetal.

Once the work on the floorpan is complete, you'll want to protect your investment immediately. We used a series of Eastwood products; in areas we kept that had deep but survivable surface rust, we cleaned them up and used Eastwood's Rust Converter (PN 51483Z, $19.99. Where we wanted to protect good metal or cover up a coat of Rust Converter, we used Eastwood Black Rust Encapsulator (PN 16060Z, $19.99).

SOURCES

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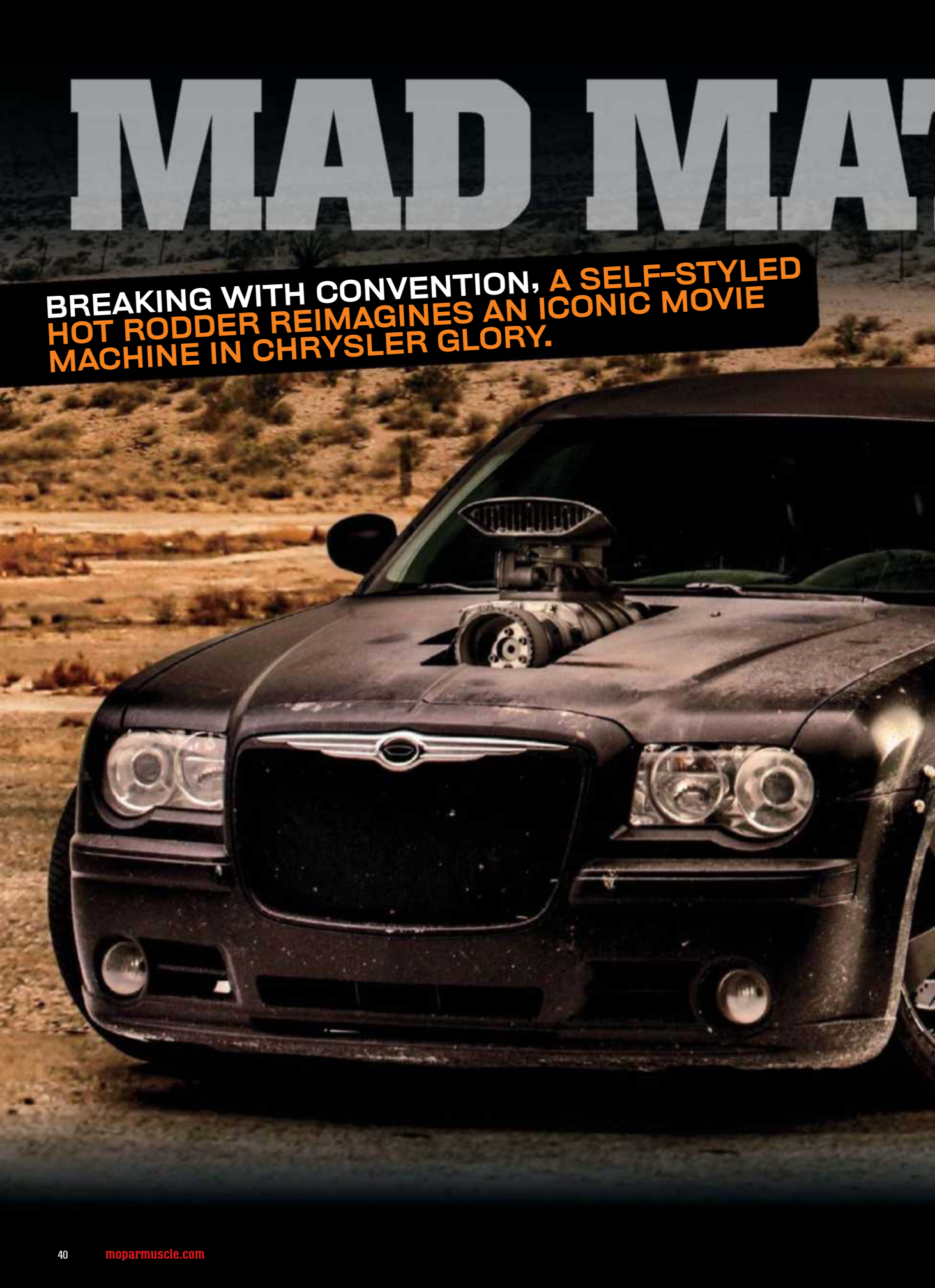


BY JOHNNY HUNKINS
PHOTOGRAPHY BY JORGE NUNEZ

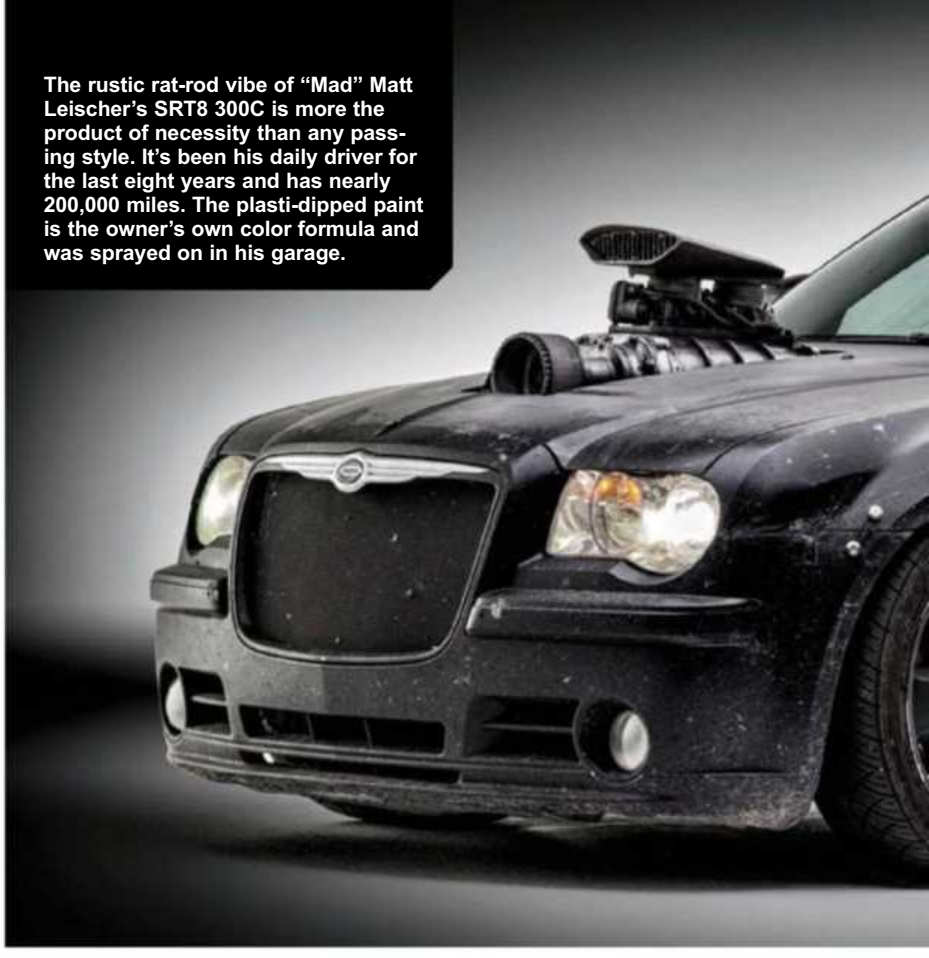
It matters not what age you are, where you come from, or what your automotive proclivities are, once Matt Leischer's battle-weary 190,000-mile '06 SRT8 Chrysler 300C heaves into view, you are compelled to get much closer to it. You immediately want to know things. Is there a movie being shot around here? Where's the car show? Is that blower real? Is the circus in town? Why, why, *why?* Then you spot the guy with the Mohawk driving it. Should you call the police, or is *he* the police?

Instinctively, young and old get the reference to *Mad Max*, the dystopic '79 cult classic that featured a baby-faced Mel Gibson as a rogue cop who drove a supercharged '73 Ford Falcon XB GT. What's so amazing is that everyone who encounters Leischer's 300C gets the connection right away, in spite of the vast disparity in year, make, and model. What's more, folks old enough to remember the original movie dig this 300's old-school street machine vibe, while millennials are drawn to the late-model Hemi, slammed look, and murdered-out paint. It's a rare one-size-fits-all crowd pleaser.

And the super-dirty rat-rod look? It's not so much a calculated style move as it is the product of the car's utilitarian nature. Leischer lives in the dusty suburb of Laveen, Arizona, and he drives it to work every day. Anywhere. A lot. With almost 200,000 miles on the clock, it has more in common with an over-the-road semi truck than a toy weekend hot rod. The exterior finish is composed of real splattered bugs, rock chips, desert sand, mud geysers, blower belt dust, and extraterrestrial micrometeorites. And no, you won't find it in a Mothers ad anytime soon.

A few things the casual observer wouldn't know that are impressive: Leischer built it at home from parts of his own manufacture, which might not seem like such a big deal, except for the fact that he had to completely reassemble the car, from whatever state it was in, every time he needed to get somewhere. ("I could have the stock intake and fuel system off the car in under five minutes," jokes Leischer.) And as you'll see, in all but a few instances, Matt took the road less traveled by opting to fabricate or adapt hardware and software rather than buy blister-packed, off-the-shelf stuff. As you'll see, Matt is not a "bolt-on" type of guy.

All this madness started innocuously enough. Leischer cites that in 2007, the then-silver Chrysler 300C SRT8 was his



The rustic rat-rod vibe of "Mad" Matt Leischer's SRT8 300C is more the product of necessity than any passing style. It's been his daily driver for the last eight years and has nearly 200,000 miles. The plasti-dipped paint is the owner's own color formula and was sprayed on in his garage.

choice of car at that moment. Like most, he left it stock during the warranty period, then started digging into simple mods once the factory cut the service cord. Then we see nascent signs of Matt's iconoclastic hot rodding behavior. A self-styled fabricator, electrical buff, heavy metal guitarist, and all-around counterculture rebel, he built his own cold-air intake and exhaust system in his Arizona garage from cobbled parts. Between 2007 and 2012, a steady flow of "ordinary" mods flowed from Leischer's garage, including shaved rear doors, a lowered suspension, bigger sway bars, stiffer poly bushings, a bigger camshaft, a custom tune, 22-inch replica SRT8 Charger wheels, and the black plasti-dipped paintjob.

That wicked semi-satin paint, however, wasn't your typical spray can job typified by the import crowd. Here, Leischer made the first of many breaks with tradition by buying clear plastic dip in industrial-sized buckets, adding his own homebrew of black iron-oxide pigment, then spraying it on with a Wagner Power Sprayer. (A tip from Leischer: "An HVLP spray gun doesn't work that well with plasti-dip.") After eight coats of that, he followed it up with his own recipe of semi-satin clearcoat plasti-dip. He's driven the car with that rubberized paintjob—leaving it for the most part unwashed—for years.

Then an idea began to grow in Matt's head. That gave way to harmless research, then eventually a rendering. Matt tells it like this: "I photoshopped a Chrysler promo shot of the SRT8 and added the top end of an injected blown engine, just kind of as a joke. The more I looked at it, the more I thought it was plausible. At first, it was just the mechanics of it. Nobody had a blower manifold at the time that I was aware of. The drive system was going to be the other stumbling block. The OEM system is a serpentine accessory drive, and I had to figure out how to fit a 3-inch drivebelt and pulleys in the limited space. I started to see some photos online of cars that were being built with a blown Gen III Hemi, but they were all dedicated race cars and were pretty well modified in the engine bay. I set a goal for myself to do the same, but with the stock engine bay and minimal cutting."

Eventually, Leischer had come up with enough solutions—in theory at least—to convince himself that such a mad plan could really happen. That was September of 2012. "It was my birthday when I got the go-ahead to start doing some of this. My wife asked me what I wanted for my birthday, and I gave her a one-word response: blower." As Matt would soon find out, picking up an old-school 6-71 GMC huffer on eBay was the easy part. At this point, it's also worth mentioning that he also made the decision to convert the fuel system to run on E85, which would give him much needed resistance to detonation, an especially important move toward making the stock high-compression hypereutectic pistons live reliably under boost.

Leischer continues: "It took me about a year after that to get it together. One of the first things was looking at manifolds. I had come across Indy Cylinder Heads. They had the modular-style open plenum Gen III intake that was designed to have interchangeable top plates, and one of them was a blower plate. I'd seen some blown Gen III Hemis put together, but they were mostly retrofitted into street rods. The pulley and belt placement was way far forward, and that wasn't going to work for this, so I started cruising eBay and Craigslist to see what combination of pulleys and drive snouts would work."

Matt knew he was going to need a long snout compared to a big-block Chevy drive, and to solve that, he mounted the blower pulley backward to get it further out. That gave him the distance necessary to clear the serpentine system. But the lower pulley presented problems of its own. "There was a trick on the lower pulley I had to work out," says Leischer. "Your standard blower pulley bolts on to a V-groove pulley, so I went with a Gen III Hemi damper from ATI, which is built with a standard three-bolt Chevy pattern which would allow me to use the big-block Chevy blower pulley. I found a guy on eBay who machines pulleys, and asked him to machine the drive pulley so it would mount directly

The BoostKlock is a work in progress, but when completed, a dial pointer will indicate boost pressure.

"With almost 200,000 miles on the clock, it has more in common with an over-the-road semi truck than a toy weekend hot rod."

Here you can see the precarious position of the 3-inch Gilmer drivebelt and how it barely slips between the radiator and the serpentine drive. Note Leischer's custom-designed idler pulley bracket attached to the water pump.

Despite its fearsome appearance, Leischer's 6.1L SRT mill is largely stock, relying on its original short-block, rotating assembly, and cylinder heads. A larger Inertia Motorsports cam is buried inside, leaving the GMC 6-71 blower to garner all the visual attention.

to the ATI damper, thus eliminating the intermediate V-groove accessory drive pulley. That got me the room I needed to fit it behind the stock radiator."

To get the blower drive to fit within the bounds of the stock 300C engine compartment, Matt also had to relocate the radiator forward. "I took a trick out of the Procharger playbook and used some spacers to move it out a bit." The fit looks impossibly tight with the 3-inch blower belt threading the needle, but it works well.

At this point, Matt had his sights set on building it to look like the *Mad Max* interceptor, which has an idler that can't really be seen with the hood shut. To make that happen, he designed his own idler bracket that mounts to the stock water pump. "I bought a water pump from

Chrysler's original SRT8 interior is not only comfortable, but robust enough to withstand years of hammering out in the Arizona desert. Hard-pressed to improve upon it, Leischer left it alone, save a few choice tweaks.

Leischer bought two extra rear doors on eBay, shaved them off the car, then installed them with door poppers located just inside the B-pillar, adjacent to the front doors.

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AutoZone, took some digital pictures of it, and used photoshop to get the dimensions of the water pump. From that, I made a paper template to do a test-fitting. Happy with that, I had it cut with a water jet from half-inch aluminum, then machined some spacers to mate it to the water pump."

With the basic physical layout solved, the real challenge of the electronics and tuning began. From the beginning, Leischer consulted with DiabloSport about the tuning. "My concern was how the OEM electronics were going to react to this type of induction. My mindset is that it wasn't going to be any different than any draw-through–type supercharger. Knowing that the inlet restriction of a draw-through was critical, I knew a single throttle body wasn't going to work. I still wanted to use the OEM drive-by-wire control so I decided to look into using two stock throttle bodies. Those would get me around 1,800 cfm, and would be cheap. I think I paid $75 for the two throttle bodies I used."

During the first part of the process, Leischer used a single throttle body mounted on another custom plate that was water jetted. He knew he was going to end up with the dual throttle bodies and the '60s-style Scott FI scoop like on the *Mad Max* interceptor, and the single throttle body was just to prove the concept and get it up and running. Once he breathed fire into the SRT 6.1L for the first time with the provisional setup and the E85 fuel system, Matt knew he had the end in sight.

Matt then toyed around with making a mechanical linkage to drive the second throttle body, but just couldn't come up with a reasonable solution. "You can't just split the signal, each one has to send and receive a signal to the computer independently," Leischer says. "I set out to design a controller for the second throttle body, teaching myself open-source processor controller programming code based on something called Arduino. It's rampant in the hobbyist robotics world. It worked, but not as well as I wanted it to.

After several curbing incidents where Leischer damaged the bumper, he used an old "drifter" trick by attaching the bumper to the sheetmetal with easily connected drift-style elastic couplings.

That's when I found OZMO out of Australia, and they had a dual throttle-body controller for the LS motors. I ended up adapting that. That thing worked beautifully."

The first start-up tune worked surprisingly well, Matt relates. It only took a couple of rounds of data-logging and emailing tunes back and forth with DiabloSport to get it working perfect. "The main thing was going to be the driveability," Leischer says. "Everybody seems to get the idle and full-throttle tuning just right, but it's all the mid-throttle tuning that needed to be right for everyday driving. DiabloSport nailed it."

The result of Matt's madness is a one-of-a-kind 6-71–blown 300C that puts out 452 hp to the rear tires with a modest 5 pounds of boost, and thanks to E85 fuel, does it with squeaky clean emissions. The blower whine resulting from all that supercharged mayhem is pure sweetness to a gearhead's ears, and if you don't see it first you'll surely lock onto it with your ears if it's anywhere in your vicinity. What's more, the souped-up SRT runs flawlessly around town and on the highway. Its only drawbacks are the reduced fuel economy from E85 fuel (Matt reports about 17 mpg), and the need to plan out long trips (such as to our LA-based studio) to include stopping at E85 fuel stations. That, however, has not cramped Mad Matt Leischer's rebellious style one bit!

FAST FACTS

2006 CHRYSLER 300C SRT8

CAR OWNER: Matt Leischer, 37 • Laveen, AZ

ENGINE

TYPE: 6.1L Gen III Hemi

BORE X STROKE: 4.055 (bore) x 3.58 (stroke), 370 ci

BLOCK: factory cast-iron SRT

ROTATING ASSEMBLY: factory forged steel crankshaft and rods, stock 10.2:1 cast-aluminum hypereutectic pistons

CYLINDER HEADS: factory (unported) SRT8 with 2.08-/1.60-inch stock valves

CAMSHAFT: Inertia Motorsports hydraulic roller, 218/222 degrees, 0.566-/0.556-inch lift, 112-degree LSA

VALVETRAIN: factory hydraulic roller with stock shaft rocker system

INDUCTION: street-converted GMC 6-71 supercharger and drive snout found on eBay, 3-inch drivebelt, DPI rear bearing cover, unknown front cover, Indy Cylinder Head Mod Man intake manifold

FUEL SYSTEM: 80-lb/hr injectors, billet fuel rails, Aeromotive regulator, OZMO Engineering throttle body controller, AEM E85 fuel pump

EXHAUST: OEM tubular manifolds, 3-inch mid-pipes, original 2.75-inch mid-section with Flowmaster Super 40 mufflers, deleted OE resonators, Flowmaster 4-inch tips

IGNITION: factory

COOLING: stock (no issues whatsoever!), 180-degree thermostat

OILING: factory

FUEL: E85

OUTPUT AT 5 PSI BOOST: 452 rear-wheel horsepower at 5,700 rpm; 425 lb-ft of torque at 5,050 rpm

ENGINE BUILT BY: Chrysler and owner (top end)

DRIVETRAIN

TRANSMISSION: OEM five-speed automatic WA580; 3.59 (First), 2.19 (Second), 1.41 (Third), 1.00 (Fourth), .83 (Fifth)

DRIVESHAFT: factory SRT8

REAREND: factory SRT8 with 3.06:1 gear ratio

CHASSIS

FRONT SUSPENSION: factory LX/SRT8 SLA with Street Edge adjustable coilovers, Eibach sway bar, Whiteline poly bushings, SPC tubular control arms

REAR SUSPENSION: factory LX/SRT8 multi-link independent with Street Edge adjustable coilovers, Eibach sway bar

STEERING: factory power-assisted quick-ratio rack-and-pinion

BRAKES: factory Brembo four-piston calipers all around, factory 14-inch vented rotors (front and rear)

CHASSIS: factory unibody LX platform

WHEELS & TIRES

WHEELS: 22x8 Dodge Charger SRT8 replica wheels, plasti-dipped black

TIRES: 265/35R22; Nitto NT420 (front), Goodyear Eagle GT (rear)

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DODGE'S WEIGHT TRANSFER EXPERIMENTS SERVED AS INSPIRATION FOR TWO YOUNG HOT RODDERS. THEIR CREATION IS NOW A FLASHPOINT FOR A NEW GENERATION OF MOPAR FANS.

BY STEVE MAGNANTE
PHOTOGRAPHY BY JOHN MACHAQUIERO

Rumbling and jiggling high above the tarmac, El Chupacabra II pulls toward the starting line. Inside, 30-something-year-old Canadian driver Pat McInnis whacks the throttle to clear the plugs and prepare the huge undercarb plenum chambers for the impending ram inducted force feeding. Jabbing the brake pedal against steady throttle pressure, the skinny front tires inch forward and break both beams. The stage is, literally, set. The 3,400-pound, altered wheelbase El Chupacabra II is about to defy gravity and bend a bunch of laws the slide rule boys once thought immutable.

On green, Pat's right foot flattens the pedal against the firewall and the 1,530-pound load ordinarily carried by the front tires becomes airborne, lighter than a feather. That's right, the iron-head Max Wedge, steel front fenders, beefy A100 van leaf springs, forged steel beam axle, and Hemi-sized 11x3-inch brake drums (the front suspension alone checks in at 223 pounds) are all weightless, dangling 2 feet above the strip. They might as well be floating in the silent void of outer space.

At the tail of the car, the load carried by the Hoosier drag slicks nearly doubles from 1,870 pounds (at rest) to the entire 3,400-pound vehicle mass, and sticky rubber churns forward against the unyielding concrete launch pad. The first 200 feet of the 1,320 are covered on two wheels, before the huge station wagon finally succumbs to Earth's gravitational pull. But there's nary a trace of rubber smoke and no shrill squeal of spinning tires. The thing is *hooking* and using every bit of its power to gobble up yardage without waste. This is the magic of weight transfer, something El Chupacabra II does very well thanks to its 45/55 weight distribution.

On his way to yet another arrow-straight 11.1-second pass at 121 mph, McInnis grins to himself while thumb-punching the shift button marked Second, knowing that all eyes are fixed intently on his wild, altered wheelbase machine streaking down the track. In the moment, he's an ambassador, charged with demonstrating and sharing the grand legacy of half-century-old Chrysler traction enhancement tricks with a new audience at every strip. If this inspires a few of them to whip up their own altered-wheelbase machines, regardless of make, the more the merrier. Mission accomplished.

But to Mopar-savvy spectators and *Mopar Muscle* readers, El Chupacabra II also serves as a combined review of not one, but three factory traction experiment programs: the '63 Max Wedge station wagon (two Plymouths and one Dodge have been verified—plus over a dozen home-brewed machines), the October 1964 A100 Sportsman van straight front axle conversion kit for B-Bodies (PN 22352), and the '65 altered-wheelbase A/FX Funny Car fleet (five Plymouths and six Dodges).

All three of these historic Dodge-specific traction tricks have been rolled together by El Chupacabra II's cobuilders, Pat McInnis and (car owner) Chris Carlson, to make it the wheel-standing beast that it is. The cool thing is how the guys are younger than you might expect for such a nostalgia-tinged act. They've got ink, cruise skateboards, and ride classic '70s chopper-style bicycles around the pits. Fact is, the rough but ready Dodge FX vibe is a perfect fit for youthful thinkers, and lots of younger folks are tuning into the altered-wheelbase, straight-axle building theme. They call these street and strip capable tributes to Dodge's traction trickeries Match Bashers, and every year seems to bring another crop of new machines into the world.

In the case of El Chupacabra II, there was a false start. Living and building their rides in Nelson, British Columbia, snow is an annual event. The original Chupacabra was meant to be based on a '64 Plymouth Savoy wagon. That one turned out to be too rusty to endure the wheelbase makeover surgery and two-door conversion scheme. Thus a clean, beige '64 Dodge was scored in Washington State and work began until winter forced it into storage. That's when Pat's garage roof suffered a snow collapse.

In their 30s, Chris Carlson (*left*) and Pat McInnis are proof that Dodge's visually striking traction trickery appeals to youngsters and oldsters alike. They're part of the new generation of Match Bash altered wheelbase builders.

Wheelbase alteration accentuates the 3,400-pound wagon body's rear overhang. Static F/R weight distribution toggles between 45/55 (at rest) and 0/100 (during launch).

Less is more when you're building for the dragstrip. The gutted interior trades comfort for efficiency. Dig the 727 TorqueFlite's push-button controls at the left end of the instrument panel. The red cover over the top button (Reverse) prevents accidental engagement at speed.

The car's 11.1/121-mph performance speaks well of engine builder Dan Dvorak's record-setting skills. A successful NHRA Max Wedge racer, Dvorak massaged the 440-based heads for optimum flow. The A&A cross ram has reduced-size port windows to match the heads. Maximum rpm is 7,800, but Chris says 7,200 rpm is optimal in the lights.

Yes, the Dodge got crunched. But luckily the Plymouth had a solid roof and the swap was made. This explains why our feature car is called El Chupacabra II—the Plymouth would have been number I.

Chris and Pat often hear comments calling the wheelbase alteration work "too difficult" for the average mechanic. They say "no way." If you have a welder and basic metalworking tools (disc grinders, cutoff wheels, etc.), the project isn't beyond your reach. The boys do relate an amusing anecdote about the engine: "When engine builder Dan Dvorak first heard about our straight-axle, altered-wheelbase plans, he told us we were crazy for using such an obsolete strategy." Apparently, "No-Dyno" Dan wasn't thrilled about the wagon's mile-high stance and juggled axles. But he came around when the guys reminded him they weren't out to re-set the NHRA A/Stock class record. They were just hoping to have some fun on the nostalgia drag racing scene.

There's nothing funny about the Dvorak-built 437-inch wedge under the wagon's Max Wedge hoodscoop. Based

The effectiveness of the Mopar S/S rear suspension is further amplified by wheelbase surgery. The entire rear floorpan, with leaf springs and axle attached, was moved forward 12 inches as a one-piece unit.

on a perfect zero-core-shift 1964 Industrial 413 block, it easily cranks 7,800 rpm and puts out over 640 hp despite the use of non-Maxie heads. For perspective, let's remember that Tom Hoover was part of the '62 Max Wedge development program (sadly, Hoover died on April 29, 2015). In an interview that appeared in Dave Rockwell's 2009 book *We Were the Ramchargers* (SAE International) Hoover states, "There was one disappointment. Because I'll tell you, I was markedly disappointed. That was when the big Max Wedge inlet port didn't provide much over a lightly ported 413 production car head. I was really flabbergasted when that happened."

The upshot is that with serious port work any standard 906-style iron head has plenty of flow potential. Pat tells us the finished intake port openings are actually slightly *larger* than stock Max Wedge openings, which are about 15 to 20 percent larger than non-"Maximum Performance" head castings. Combined with the station wagon's extremely effective weight transfer characteristics, the resulting engine/vehicle combination is a winner.

When asked about the name El Chupacabra II, Carlson tells us it's a reference to a mythical beast that's half dog and half demon. Literally translated into English, it works out to "goat sucker." Chris says, "It's ready to suck the headlights out of any Pontiac that gets close enough." Arnie Beswick, are you reading this?

Expanded to nearly double its original size thanks to wheelbase relocation, the stock spare tire well accepts the fuel cell and battery with room to spare for added ballast.

FAST FACTS

1964 DODGE 330 WAGON
CAR OWNER: Chris Carlson
South Slocan, BC, Canada

ENGINE

TYPE: 437ci Max Wedge by Dan Dvorak

BORE & STROKE: 4.320 x 3.75 inches

BLOCK: 1964 413 industrial block bored over 0.135 with Dvorak billet main caps and crank scraper

COMPRESSION RATIO: 13.5:1

ROTATING ASSEMBLY: Chrysler forged steel crank, shot-peened Manley 440 rods, ARP rod bolts, 0.135 oversize CP forged pistons, ATI Super Damper, balanced by Dvorak

CYLINDER HEADS: 1969 Chrysler 906-casting 440 heads, heavily ported by Dvorak with Manley 2.14-/1.81-inch stainless valves, Crower steel retainers and double valve springs

CAMSHAFT: custom COMP solid roller, Dvorak says the specs are "top secret but milder than you'd expect"

VALVETRAIN: COMP 1.6:1 roller rockers, 3/8-inch moly push rods

INDUCTION: A&A 440-port-window, reproduction Max Wedge cross ram, dual Edelbrock No. 1407 750-cfm carburetors, tuned and cross-jetted by Dvorak

FUEL SYSTEM: 5-gallon plastic fuel cell, electric pump, ½-inch fuel lines and filter

OILING: Melling HV pump, rear sump truck pan with extended pickup tube and Chris Carlson 1 1/2-inch-thick oil pan spacer

EXHAUST: Hooker Super Comp fenderwell headers

IGNITION: MSD Pro Billet distributor, 6AL2 box, 8.5mm wires

COOLING: slant-six radiator, aluminum water pump housing, electric water pump and cooling fan

OUTPUT: approximately 650 hp at 7,000 rpm

BUILT BY: Dan Dvorak, Waldo, FL

DRIVETRAIN

TRANSMISSION: 1965 cable-operated 727 TorqueFlite three-speed automatic (2.45, 1.45, 1.00 ratios) with JW Ultrabell and reverse-pattern, full manual valvebody

CONVERTER: 8-inch TCS with 5,300-stall speed, B&M cooler

SHIFTER: factory dash-mounted push buttons with First and Drive button heads swapped to reflect revised shift pattern and reverse lock-out, cover by Pat McInnis

REAREND: stock width 1966 8 3/4-inch B-Body housing, 4.88 gears in 489 case with spool, 35-spline Moser axleshafts, shortened Dodge Dakota driveshaft

CHASSIS

CHASSIS: 1964 Dodge B-Body with wheelbase reduced from 119 to 117 inches,Competition Engineering rollbar kit, home fabricated subframe connectors and engine mounts

FRONT SUSPENSION: stock width 1967 Dodge A100 van front axle, leaf springs, relocated 10 inches ahead of the stock front spindle position, Rancho steering damper, Calvert drag shocks

REAR SUSPENSION: stock B-Body with S/S leaf springs, Calvert nine-way drag shocks, relocated 12 inches ahead of stock rear axle position

STEERING: 1967 Dart V-8 manual steering box, Speedway custom column and U-joints, fabricated by Chris Carlson

BRAKES: 11x3 A100 van front drum brakes, 10x2-inch B-Body rear drum brakes, dual-circuit manual master cylinder

CAR BUILT BY: Chris Carlson and Pat McInnis with help and input from Gabe Sawatsky, Chris Barnes,38 and Graham "Gaffo" Jones and the Wagons of Steel team

WHEELS & TIRES

WHEELS: 15x4.5 and 15x7 American Racing Torq-Thrust D

TIRES: Hurst 165-15 Super Cushion (front), Hoosier 30-10R-15 radial-type drag slicks (rear)

✓Yes

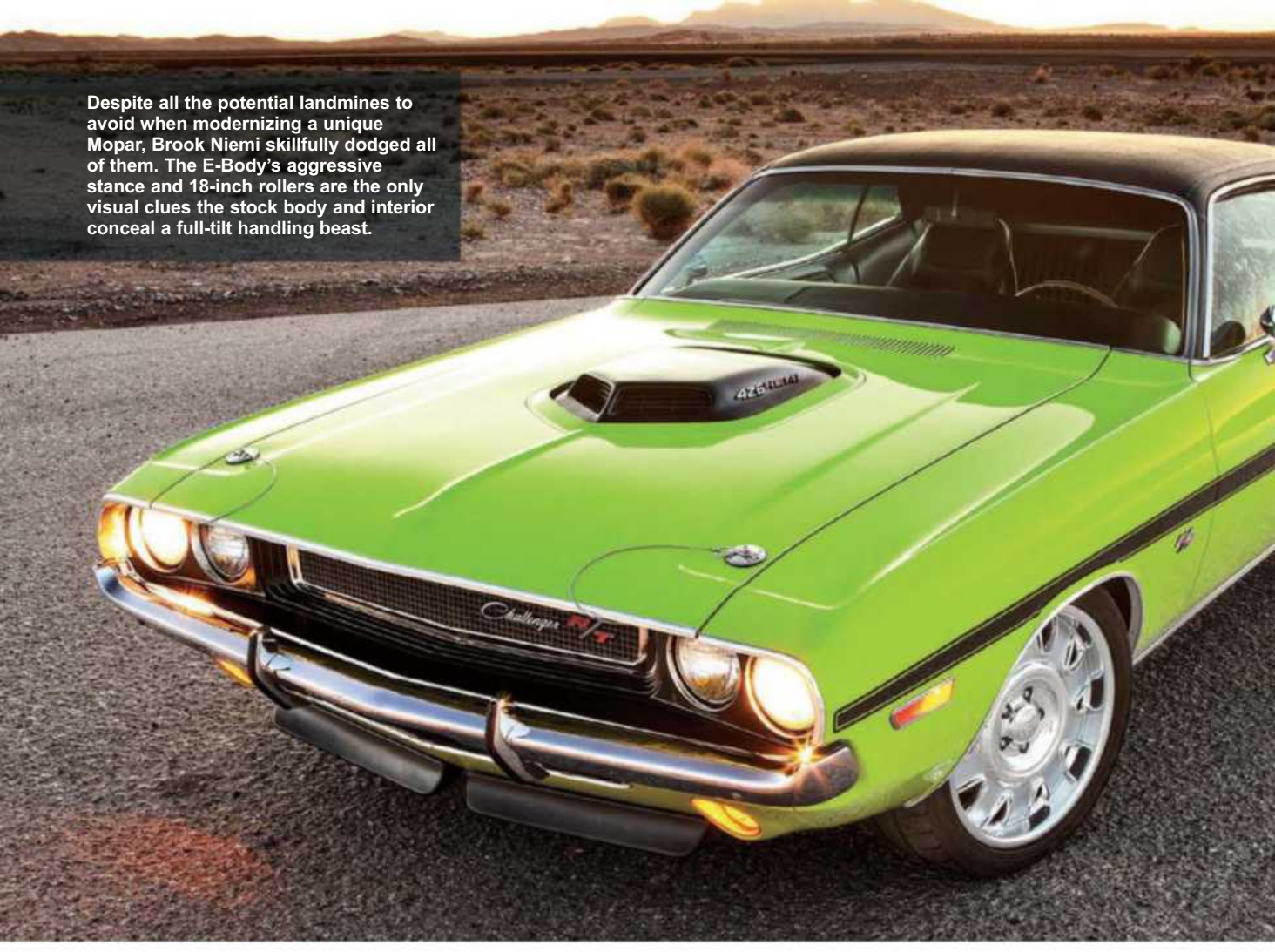
✓Yes

✗No

✓Yes

✓Yes

✓Yes



Despite all the potential landmines to avoid when modernizing a unique Mopar, Brook Niemi skillfully dodged all of them. The E-Body's aggressive stance and 18-inch rollers are the only visual clues the stock body and interior conceal a full-tilt handling beast.

BY STEPHEN KIM ✪ PHOTOGRAPHY BY JOHN MACHAQUIERO

For hillbillies who don't spell too good, Super Stock and "Super Stalk" might as well be one in the same. For the literate segment of society, however, both are distinctly different, yet equally heroic endeavors. In NHRA Super Stock, the Big Three dumped ludicrous stacks of money to build factory ringers for bragging rights and bragging rights alone. This results in cool stuff like 9,000-rpm hydraulic roller small-blocks that run 9-second e.t.'s. By contrast, "super stalk" describes one man's quest to chase down the exact same car for 30 years before finally convincing the owner to put it up for sale. It takes a very unique car to inspire such an extreme obsession, and the story behind Brook Niemi's '70 Dodge Challenger proves that the truth is indeed much more interesting than fiction.

Although people love reminiscing about how everything was better during the muscle car era, they rarely mention that it was also a time when real car guys worked at car dealerships. Imagine, for a moment, the luxury of ordering up the Mopar of your dreams with an employee discount to boot. Throw in a savvy employee's knowledge of all the obscure option codes offered by Chrysler, and Brook's Challenger is the result. "The original owner was a Dodge salesman in Great Falls, Montana, who ordered it as a company car," Brook explains. "The dealership didn't allow optioning company cars with Hemis or Six Pack induction systems, so he ordered it up with the R/T package, 440 big-block, a four-barrel carb, an A833 four-speed, and a Dana 60 rearend. Once the car arrived, he swapped out the four-barrel carb and the stock hood for a Six Pack and a factory T/A hood. The car was also optioned with the Special Edition package, which included a smaller back window, four-point seatbelts, and a console in the headliner."

Eventually, the unique E-Body moved on to its second owner a few years later, which is when Brook first saw it and fell head over heels. "During high school in the late '70s, the machine shop I was working at built a 500ci Six Pack engine for the Challenger. At that time it was painted white and built to look like the car from *Vanishing Point*," he recalls. "I have such vivid memories of the owner pulling wheelies with the car in the parking lot. From that day forward, I always kept up with the car. The third owner purchased the car in the early '80s and never drove it much."

The bad news was that the Challenger's third owner seemed to appreciate it more for its collectability than its Chevy-stomping potential. The good news was that this same lack of use kept the car in outstanding condition. "From the early '80s to 2005, the car sat in storage. The owner at the time liked that the Challenger was one of less than 150 built with a 440 and a four-speed, but his real passion was for '60s-era cars," Brook says. "He planned on restoring the car back to stock someday, but he eventually had a change of heart and decided to sell it to help fund other projects. He had been sitting on my contact information for years, so as soon as I got the call that the car was available, I picked it up immediately."

Throughout the course of its decorated history, this fine Mopar specimen had

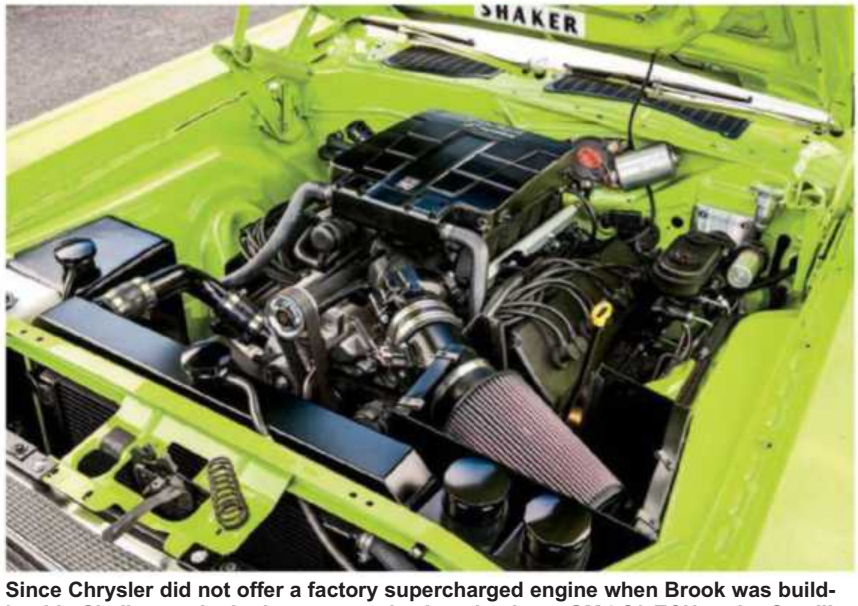
SUPER STALK

IT TOOK DECADES, BUT THIS MOPAR FAN FINALLY GOT THE CAR HE ALWAYS HAD HIS EYE ON—THEN DROPPED A 1,000HP GEN III HEMI INTO IT!

logged just 54,000 original miles. Even so, the 30-year-old paint had seen better days, so Brook stripped the car down, repainted it, and dropped the original 440 back in it. While the crew at Kindig-It Design tackled the paint and bodywork, the car revealed yet another one of its interesting secrets. "The paint code indicated that the car was originally Sublime Green. Since that made it even rarer, the shop tried to talk me into painting it the original OE color," Brook recalls. "I understood the reasoning behind it, but in my mind the car had to be white because that's the color it was when I first saw it as a kid. I always remembered it as a *Vanishing Point* tribute car, so that's how I planned on restoring it."

By sticking with his guns, Brook successfully re-created the car from his childhood dreams. All was good in his hood until a chance encounter with another Mopar triggered an avalanche of changes. "I was sitting at a stoplight one day when a Sublime Green Challenger R/T with a 426 Hemi pulled up behind me. It looked so good that even though I had just finished painting my car white, I decided at that moment that I had to repaint it green," Brook says. On one hand, stripping the car back down just to repaint it seemed like an awful lot of work, and Brook was tempted to modernize the powertrain, suspension, and brakes. On the other hand, he had some reservations about throwing a bunch of non-original parts on such a rare piece of Mopar history. Ultimately, the itch to build something truly unique prevailed.

Seeking modern levels of power, driveability, braking, handling, and comfort in a 40-year-old chassis required a major overhaul of all the major mechanical hardware. Granted, a stock 440 provides plenty of scoot by most standards, but Brook wanted more power. Like three times more power. He determined that the best method of accomplishing this



Since Chrysler did not offer a factory supercharged engine when Brook was building his Challenger, he had to get creative by adapting a GM LS9 ECU to the Gen III Hemi. This involved building a custom wiring harness and coil drivers.

"I HAVE SUCH VIVID MEMORIES OF THE OWNER PULLING WHEELIES WITH THE CAR IN THE PARKING LOT. FROM THAT DAY FORWARD, I ALWAYS KEPT UP WITH THE CAR."
–BROOK NIEMI

without increasing mass was by swapping out the big-block for a supercharged, all-aluminum Gen III Hemi. Absolute Performance (Sandy, Utah) welcomed the challenge and schemed up the perfect combination for Brook's needs. The setup is based on an aftermarket aluminum block that's been bored to 4.125 inches and fitted with a Callies forged 4.000-inch crankshaft, Oliver steel rods, and custom Wiseco 9.5:1 forged pistons. An Edelbrock E-Force supercharger pressurizes air molecules into a set of Thitek aluminum cylinder heads, and custom Arrow Lane headers evacuate the cylinders. The result is 426 ci of Gen III Hemi that kicks out over 1,000 hp and 1,100 lb-ft of torque.

For easier freeway cruising, Brook replaced the A833 trans for a Tremec TKO 600 five-speed, which feeds torque to a Strange S60 rearend.

Of course, horsepower alone

The EVOD rollers look like stock Rallye wheels from afar, but they're actually 18 inches in diameter. That affords plenty of room to fit big Wilwood brakes while retaining a stock appearance.

The Challenger's carpet, upholstery, and headliner have been restored to mimic a stock interior. The original dash and instrument panel house gauges whose internals have been updated, but externally look original.

Yet another unique feature of the Challenger is that it was originally ordered with the Special Edition package, which included a console mounted on the headliner featuring a low fuel light and a seatbelt warning light. Four-point harnesses and a smaller rear window were part of the package as well.

is meaningless if it all goes up in smoke, so Brook completely revamped the chassis with Reilly Motorsports hardware. Up front, the stock suspension has been replaced with an RMS K-member, control arms, sway bar, and coilovers. Out back, the factory leaf springs got yanked for an RMS four-link system. Monster Wilwood disc brakes convert forward inertia into heat, while 18-inch EVOD wheels wrapped in Nitto rubber plant the lateral and longitudinal loads to the pavement.

Inevitably, some collectors won't take too kindly to throwing a late-model EFI motor along with modern suspension and brakes at a super rare Challenger with only 54,000 original miles. Nevertheless, from the car's original interior to its stock body and paint, Brook has gone to great lengths to retain the essence of what the Challenger looked like when it rolled into the dealer lot in 1970. "Sure, I had some reservations about putting a bunch of modern parts on this car, but I've put the original engine, rearend, K-member, and suspension into safe storage. I can swap all the original parts back in very easily," he explains.

Ultimately, Brook doesn't have to explain himself to anyone. After patiently stalking his prey for 30 years, he's earned the right to do whatever he wants, period correctness be damned. Despite how utterly badass Brook's 1,000hp Challenger may be, its cool factor still takes a back seat to the incredible story behind it. Lusting over the same car for three decades, then transforming it into the ultimate E-Body, could just be the most rewarding car building experience of all time. As the saying goes, you can't make this stuff up.

FAST FACTS

1970 DODGE CHALLENGER

CAR OWNER: Brook Niemi • South Jordan, UT

ENGINE

TYPE: 426ci Chrysler Gen III Hemi small-block

BLOCK: Mopar Performance aluminum bored to 4.125 inches

OILING: Melling oil pump, Milodon pan

ROTATING ASSEMBLY: Callies 4.000-inch steel crank, Oliver rods, Wiseco 9.5:1 pistons

CYLINDER HEADS: CNC-ported Thitek aluminum castings

CAMSHAFT: custom Arrow Racing hydraulic roller (specs classified)

VALVETRAIN: COMP Cams valvesprings, Smith Bros. pushrods

INDUCTION: Edelbrock E-Force supercharger and throttle-body

IGNITION: stock

EXHAUST: custom Arrow Lane headers, custom X-pipe, dual 3-inch MagnaFlow mufflers

COOLING SYSTEM: C&R Racing radiator, Spal electric fans

OUTPUT: 1,004 hp at 6,200 rpm and 1,109 lb-ft at 4,800 rpm

DRIVETRAIN

TRANSMISSION: Tremec TKO 600 five-speed manual, Centerforce clutch, Hurst shifter

REAR AXLE: Strange S60 rearend with 35-spline axles, 3.54:1 gears, and limited-slip differential

CHASSIS

FRONT SUSPENSION: Reilly Motorsports K-member, control arms, coilovers, steering rack, and sway bar

REAR SUSPENSION: Reilly Motorsports four-link, Panhard bar, coilovers, and sway bar

BRAKES: Wilwood 14-inch discs and six-piston calipers, front; Wilwood 12-inch discs and four-piston calipers, rear

WHEELS & TIRES

WHEELS: EVOD Challenge 18x9.5, front; 18x10.5, rear

TIRES: Nitto NT05 275/35ZR18, front; 295/35ZR18, rear

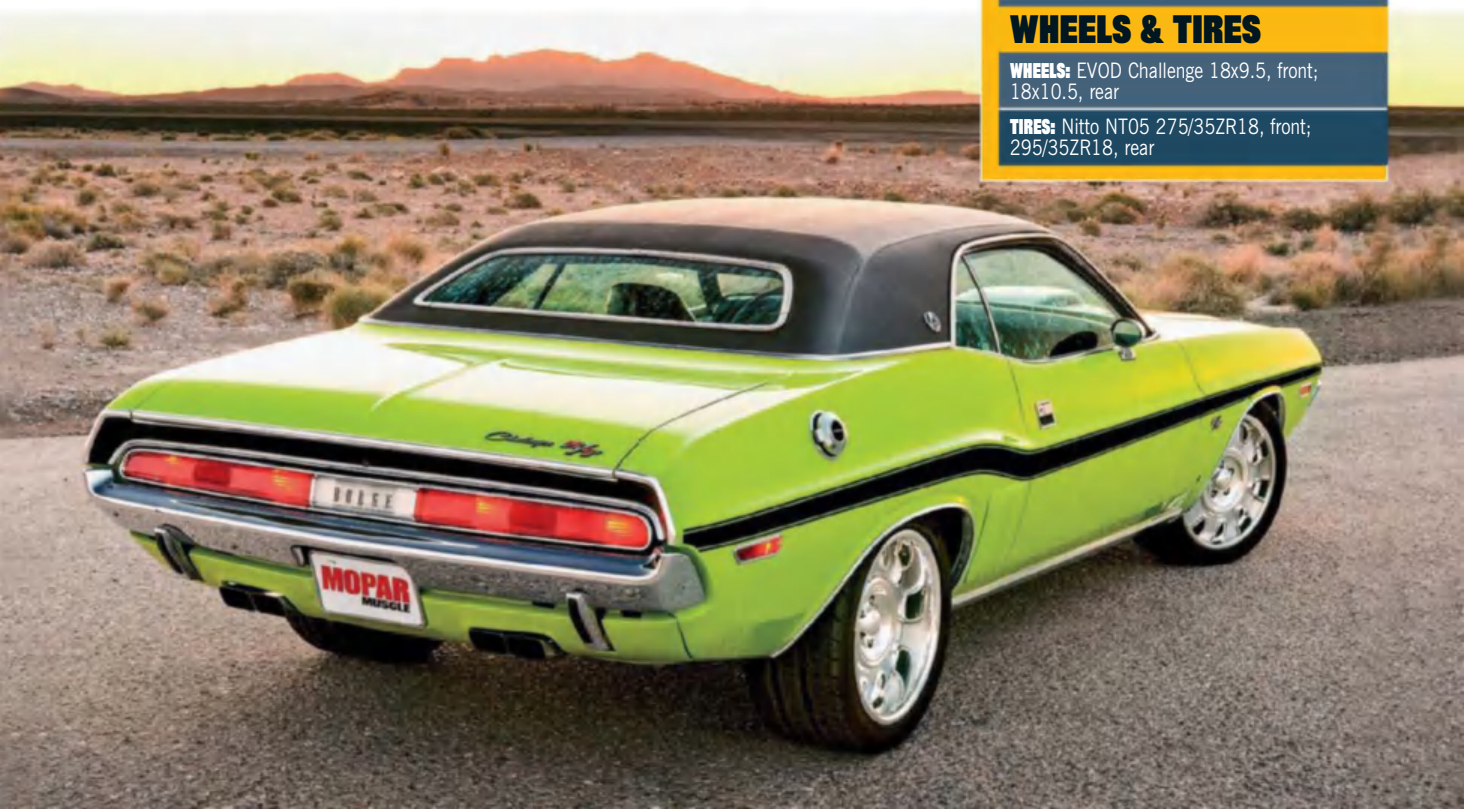


PHOTO CREDIT: CHRYSLER ARCHIVES

HEMI GODFATHER, TOM HOOVER, DIES AT 85

Heaven's racing brain trust just got a lot smarter as Tom Hoover, the Godfather of the 426 Hemi, died on April 30. Tom had been in a Dallas/Fort Worth hospital for a blood disorder he had been fighting for some time. Tom had been stabilized and was ready to move into a rehab facility, but his condition worsened, and the 85-year-old icon was lost. Tom's tenure as a Chrysler engineer gave us the 413/426 Max Wedge, 426 Hemi, and all the neatly wrapped package cars that have come to dominate the nation's dragstrips over the past five decades.

Hoover was a legend among the Mopar community, and a threat to Chevy, Ford, and Pontiac teams. As an original member of the famed Ramchargers racing team, Tom and his merry band of gearheads kicked butt in the early 1960s with a slew of Dodge Super Stockers, A/FX creations, and Funny Cars. It was this group of passionate engineers and enthusiasts that put Chrysler on the map in the eyes of the youth market, and gave the brand the image it so desperately needed to be taken seriously at the 'strips and streets around the country.

Born in Huntington, Pennsylvania, Tom's early interest in internal combustion engines was heavily influenced by his father, who was an auto mechanic. After graduating from high school in 1947, Tom attended Juniata College in his hometown. In 1948, Hoover enlisted in Pennsylvania's National Guard and within two years shipped out to serve in the Korean War.

After his stint with Uncle Sam, Tom finished up his undergraduate degree in physics and headed to Penn State University for his master's degree. In 1955, he joined Chrysler Corporation. Always yearning for more knowledge, Tom enrolled in the Chrysler Institute and his teachers quickly realized how bright he was. After he received his master's degree in Automotive Engineering, Tom was assigned the Bendix Electrojector program that was optional on the '58 Chrysler 300D, De Soto Adventurer, Dodge D500, and Plymouth Fury. It was an early and somewhat rudimentary fuel injection system, but Tom learned a great deal from the short-lived program. By the 1960s, Tom was a "hands-on" engineer and worked many times after hours in an old dealership known as the "Woodward Garage" along with his fellow Ramcharger comrades. Tom would first leave his grease-smeared thumbprint on the venerable Max Wedge engine before giving birth to its brash sibling, the King Kong 426 Hemi.

Along with the Hyper-Pak Slant Six, Max Wedge, and 426 Hemi engines, and fleets of specially prepared race-only Super Stock package cars, Tom also managed the Motown Missile factory Pro Stock program. One of Tom's many achievements during this era was developing the Individual Runner (IR) Tunnel Ram Intake Manifold for the 426 Hemi. Tom worked on this project at night in his garage and would experiment with different length tubes and weld them together. Tom would then share his findings with both Edelbrock and Weiand so they could mass-produce these manifolds for legions of Hemi racers competing in both Pro Stock and Modified Production.

Tom was also involved in many production street car programs such as the '62-'64 Max Wedge B-Bodies, '66 426 Street Hemi B-Bodies, '68 440 Dart GTS, the '69 A-12 "Liftoff Hood" Six Pack Road Runners and Super Bees, the '78 Li'l Red Express Dodge trucks, and others. Tom also brainstormed with Chrysler Product Planner Dick Maxwell on setting up the Mopar Direct Connection parts program in 1974.

In recent years, Tom Hoover was a guest of honor and gave many fascinating talks at events across the country such as the Chrysler Nationals in Carlisle, Pennsylvania, and Mopars at the Strip in Las Vegas.

Former Chrysler Super Stock and Pro Stock racer Herb McCandless says, "This man is probably one of the most intelligent men I've ever met when it comes to automotive engineering—he was the head of the Hemi race program from the beginning, and the developer of the 426 Hemi, Ramcharger, and Motown Missile engine builder. When Chrysler went to remake the 5.7 Hemi in the 2000s they sent their engineers to his house for a week to discuss design issues and changes he wished he had made. Chrysler/Dodge/Plymouth racers, it's safe to say you guys wouldn't have the equipment you have today if it hadn't of been for Hoover."

PHOTO CREDIT: DAVID HAKIM

Tom Hoover was a rock star to those in the hobby, and was quite active in recent years, making appearances at Mopar events nationwide. We caught up with him in the spring of 2014 at Mopars at the Strip during the 50th Anniversary Celebration of the Hemi. His personal '66 Dodge Coronet Street Hemi is in the background.

HOT PARTS
BY JOHNNY HUNKINS

INTERIOR RESTORATION: RETROSOUND REDONDO

RetroSound's new Redondo radio is the first radio for classic Mopars that has classic looks with modern electronics and features. The Redondo fits flawlessly in dozens of mid-1960s to early 1970s Mopar A-, B-, and C-Body vehicles thanks to an innovative modular design that allows the radio face, pushbuttons, and radio controls to be adjusted independently.

The Redondo has all the features of a modern car radio, including SiriusXM satellite, built-in Bluetooth wireless connectivity, and compatibility to play Apple devices through your audio system. The Redondo has a built-in 25-watts-times-four-channel power amplifier, RCA pre-outs, and a subwoofer output for building a system using external amplifiers. A 32,000-color display lets you customize your Redondo too. Two USB inputs are provided for Apple devices or for flash drives loaded with music files. Two additional standard auxiliary inputs for portable devices are also included. The Redondo is available with standard radio shafts or with the "thumb roller" controls, and runs just $399.99.

SOURCE: RETROSOUND
702-483-2222 • www.retrosound.com

ENGINE ACCESSORIES: REPRODUCTION FAN CLUTCH

This brand-new concours-correct No. 2806070 fan clutch from Tony's Parts was used on all '67-70 426 Hemis, '67-70 big-blocks, and '70 340s without air conditioning. Until now, the only choice was to use a less-than-100 percent accurate facsimile, or use a worn-out stock one, which is prone to loose, wobbly operation—unsafe and unreliable for anything but a static display restoration. Tony's Parts listened to the demands from customers, and tooled up for a properly reproduced OE-look version that is accurate right down to the face and correct red seal. They're available for just $300, and for an additional $10, Tony's can send yours with the correct date code stamping to match your engine. Of course, Tony's still sells their stock-looking (but not concours accurate) unit for $200 if you're not super picky.

SOURCE: TONY'S PARTS
302-398-0821 • www.tonysparts.com

COOLING SYSTEM: AMSOIL ANTIFREEZE

AMSOIL's new Ethylene Glycol Antifreeze & Engine Coolant is available in two formulations for passenger car and heavy-duty applications. They join reformulated AMSOIL Propylene Glycol Antifreeze & Coolant, delivering unsurpassed cooling system protection for any Mopar application. The ethylene-based products provide excellent protection against metallic corrosion and erosion pitting, even in extreme temperatures and operating conditions. Both offer superior corrosion protection for aluminum, steel, cast iron, copper, brass, and solder alloys. Designed with a poly-organic acid formulation, AMSOIL Ethylene Glycol Antifreeze & Coolants virtually eliminate scaling problems. Convenient 50/50 pre-mix is compatible with all other coolants and all cooling system materials including hoses, gaskets, and plastics.

AMSOIL Propylene Glycol Antifreeze & Engine Coolant has been reformulated and offers many of the same benefits as the Ethylene Glycol formulation in a low-toxicity, biodegradable option. This makes a safer option around children, pets, livestock, and the environment. AMSOIL Propylene Glycol Antifreeze & Engine Coolant is a concentrated formulation that can be mixed to desired ratios.

SOURCE: AMSOIL
800-777-8491 • www.amsoil.com

BODY & PAINT: SUMMIT SINGLE-STAGE URETHANE

You can lay down an affordable, professional-quality paintjob at home with Summit Racing's 2.8 VOC Single Stage Acrylic Paint System. Available in 49 colors from basic black to Sublime green, this acrylic urethane paint meets standards in all 50 states. More importantly, you get a premium finish with exceptional durability that surpasses enamel-based systems. Summit Racing 2.8 VOC Single Stage Acrylic Paint System mixes at a 4:1 ratio with activator, eliminating the need to calculate the proper mix. The flash time between coats is just minutes and the paint dries in less than an hour. That makes it perfect for the home painter. Summit's Single-Stage Acrylic Paint System also includes a full line of primers, sealers, reducers, hardeners, and surface prep products formulated for use with the basecoat paint—no worries about incompatible components ruining your paintjob.

SOURCE: SUMMIT RACING
800-230-3030 • www.summitracing.com

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WIDE OPEN THROTTLE

I have a Plymouth Scamp that was a six-cylinder car, but now has a strong-running 360 and 727 transmission. The engine came from a '79 Dodge longbed truck. I had it bored 0.030 over and put in flat-top forged pistons from Ross. The rods are stock, and so is the crankshaft. I put in an old Mopar Performance Hemi grind cam that my dad had in the garage from back in the 1970s. The heads are from Edelbrock and the intake manifold is an Edelbrock Victor with a Holley 750 double pumper on top.

The engine runs really good, but the problem is the throttle linkage. I don't seem to get wide-open throttle when I floor it. If I adjust the throttle linkage to open the carb all the way, the engine will just not idle down.

The stock linkage link from the cable did not have any place to hook to the carb. My dad rigged up the hook up here with a long bolt and some nuts off the side of the carb lever. It seems to work OK, but when you look down the carb, the secondary barrels are not open all the way. I know there are a lot of cars out there with similar carbs, so I am wondering, what is the right way to get this working like it should?

DAVID MYERS

David, there are a few things to consider here. Let's start with the carb. The throttle lever that the Holley carb is delivered with is not designed for the Mopar cable linkage. You can cobble the connection here in lots of different ways, but the best thing to do is get a Mopar throttle linkage adapter bracket from Holley. This part accepts a stock-style attachment stud, which will take the throttle cable and the kickdown lever. The bracket locates the link outboard, so that it is properly positioned to accept the linkage. Another factor here is the linkage ratio. The adapter bracket places the pickup point at the right distance from the shaft to give the required amount of travel.

The next thing to consider is the mounting point for the cable and/or the kickdown linkage. The linkage bracket needs to put the throttle cable in a straight line with the carb attachment point. If it is pulling at an angle, you are losing travel and potentially creating a bind. The linkage needs to line up both in height, and side to side. With the very tall Victor intake, the linkage will be too low. If you are good at fabricating, virtually any kickdown/throttle linkage can be modified to fit perfectly, but there are also adjustable linkage brackets available just for this problem. A poorly set up linkage can make driving the car a frustrating experience. It pays to take the time to get this right.

HIGH-SPEED UPSHIFT

I have a '70 Challenger that came from the factory with a 318, and now has a 440 and 727 trans. Both the engine and the transmission came from a '70 Chrysler New Yorker, so the date codes and casting numbers all look like it came stock in my car.

The engine got a rebuild that looks pretty much stock, but I upgraded the cam to a COMP 0.525 lift hydraulic, and went with an old-style Holley Street Dominator manifold, a Holley 850 vacuum secondary carb, and a set of Hooker headers. The engine makes plenty of power with the mildly ported big-valve 906 heads.

I find the engine pulls great to 6,000 rpm, but the transmission seems to be mismatched to the engine. I had the trans rebuilt locally, and they added a basic shift kit. It shifts pretty good, but it just shifts too early in drive. I can shift it manually and rev the engine out, but in drive it will shift at barely over 4,000 rpm. On the road when I floor it in drive, it just doesn't want to kick down unless I am at a low speed. For highway passing, I have to shift manually. The first thing I checked was the kickdown linkage, and the lever at the trans is adjusted correctly. It gets full kickdown at the linkage with the lever all the way back when the throttle is floored. I don't want to get into an expensive rebuild or start again with another transmission. How do I get more rpm from this transmission?

BILL STYKE

Bill, if the linkage is getting full travel to the kickdown, you are going to have to go inside the trans to improve things. The two things to look at here are the valve body and the governor assembly. At the valvebody, it is hard to say what was actually done at the transmission shop as far as the shift kit. Even with a basic shift kit, you will normally get more rpm than you are seeing, if all of the steps are followed. The key areas to be concerned with here are the line pressure and throttle pressure regulators. These may not have been adjusted to the recommended specifications. If you still have the instructions and leftover parts from the shift kit, I would go back through the valvebody and make sure everything was completed as detailed in the instruction.

Once the valvebody is sorted out, taking the shift points up to the next level requires removing the transmission extension housing to get to the governor. The extension is removed by unbolting it and then pulling an access plate under the trans mount, and spreading the external snap ring. You'll find the governor assembly on the trans output shaft. You can get a high-speed governor from A&A Transmissions (www.aandatrans.com) in a variety of configurations to meet your requirements. Just replace the stock components with those from A&A, and that's it.

WIPED TWICE

I have a Ramcharger with a built stroker 440 that I use to run in the woods and for mud bogging. It had about 650 hp with CNC Indy heads and an Indy manifold with a Dominator carb. I first built it with a hydraulic cam that had 295/307 duration, and 0.601 lift with 1.6 rockers. The engine ran great, but it wiped the cam after a few months. I pulled the engine

and it was full of metal, and two of the lifters were eaten clean through. I had to go through another full build of the engine to clean it all out, and I had to replace the bearings and get the crank polished. Luckily, the pistons were still good, and the cylinder bores didn't get scored. I put new rings into the motor at that time, and had it honed just to put in a fresh surface. I was burned up about having to get back into the motor and wanted to avoid problems this time around.

Since the engine was apart, I figured I'd make the best of it and put together a stronger engine this time. I milled the heads for more compression, and went to a solid-roller cam. I worked with my machinist who spec'd the cam and had it custom made for my motor. He set the heads up with matching springs for the cam and added titanium retainers. It seemed like everything went according to plan, and the engine was a monster. The problem happened in the mud pit. I dropped a cylinder or two, and when I dug back into the motor I found two broken lifters with the lifter wheel bearings all chewed up and what was left of the lifter dug into the cam.

I've just about had it with spending money on this rig if it isn't going to last me. What is it going to take to make this thing live?

LEON MORSE

Leon, as you found out, blown-out cams and lifters can get expensive in a hurry. Normally, the way to avoid this is to go with a hydraulic roller and buy the best quality parts you can find. In your case, with the power level you are playing with and the way you use your engine, it is going to be tough to get a hydraulic-roller cam setup that is going to perform like a solid roller. It takes a lot of power to run strong in the mud, and a lot of rpm. First, make sure you have a good rev limiter, since over-revving is always going to damage an engine sooner or later. Valve float with a solid roller is just about guaranteed to destroy the lifters. You are going to need a good spring package with the cam to control the valvetrain in the rpm range that the engine will operate in.

I would go back with a solid roller, but I would go to a premium, non-needle roller lifter, such as the Isky EZ Roll. I would work closely with the cam grinder for a spring package that will work with the cam and rpm. I would also recommend running the engine on the dyno to get a handle on the real rpm limitation of the valvetrain, and keep a safety margin on rpm. That said, a wild, high-performance engine like this is going to need regular maintenance and inspection of the lifters and valvetrain. It just comes with the territory.

TRUNK DRONE

I have a '69 Coronet 500 with a built 383 and an automatic trans. I pulled this car from a field, and had all of the bolt-on body parts chem stripped when I built it. I have a 2 ½ inch exhaust system with Dynomax turbo mufflers on it now. The problem is a drone at idle, and it is worse when I put the car in gear. I tried to find where it was coming from, and

found a problem that I haven't run across before. The trunk lid on these cars is very big, and made with inner and outer sheetmetal panels crimped together all around the edges.

What happens is these two panels seem to really vibrate, especially in gear. It seems like 90 percent of my noise is coming from the trunk lid. It seems like some kind of sealer between the panels would help to stop this vibration, but there is no way to separate the two panels. Any suggestions?

MIKE ALLISON

Mike, sometimes the frequency of the exhaust can just tune-in and create a very specific vibration like this. It is possible that a change in the exhaust system, such as adding tailpipe resonators, can eliminate the problem. Adding a sealer between the panels would cut down on their ability to vibrate. I have seen spray foam used for this exact issue. Another approach would be to inject panel adhesive in strategic positions between the panels.

SIX OR V-8 VOLARE

Hi, I have a '77 Volare two-door that is my first project car. I got the car from a relative, and want to get it ready for when I move away to college. It originally came with a 225ci six-cylinder engine, but that engine is totally worn out. That was why the car was parked 15 years ago. I have plenty of time to work on the car, and want it to be as quick as it looks. I have read a few stories online about building a high-performance six-cylinder Mopar. I also am considering getting a V-8 motor and putting that in the car. What is the better way to go from a cost standpoint? I don't plan to drag race the car, but I want it to have 300 or 400 hp.

STAN BARLOW

Stan, the slant-six can be built into a peppy performer, but even to hit the 300 hp number you are going to need a very radical combination. On the other hand, even a stock 318 with some basic bolt-on mods will get you 300 hp, and a good 360, or a more heavily worked 318 can get you to a true 400 hp.

If you want to get to your power target as cheaply and easily as possible, the small-block swap is definitely the way to go. The trick here is to find a good donor vehicle, complete with the transmission, since the slant-six transmission will not work. Small-block Mopar engines were produced for many years, in a wide range of vehicles. Find a good example, add a mild cam, a two-plane intake, four-barrel carb, headers, and dual exhaust, and drop that in your Volare.

GOT A TECHNICAL QUESTION YOU NEED HELP WITH?
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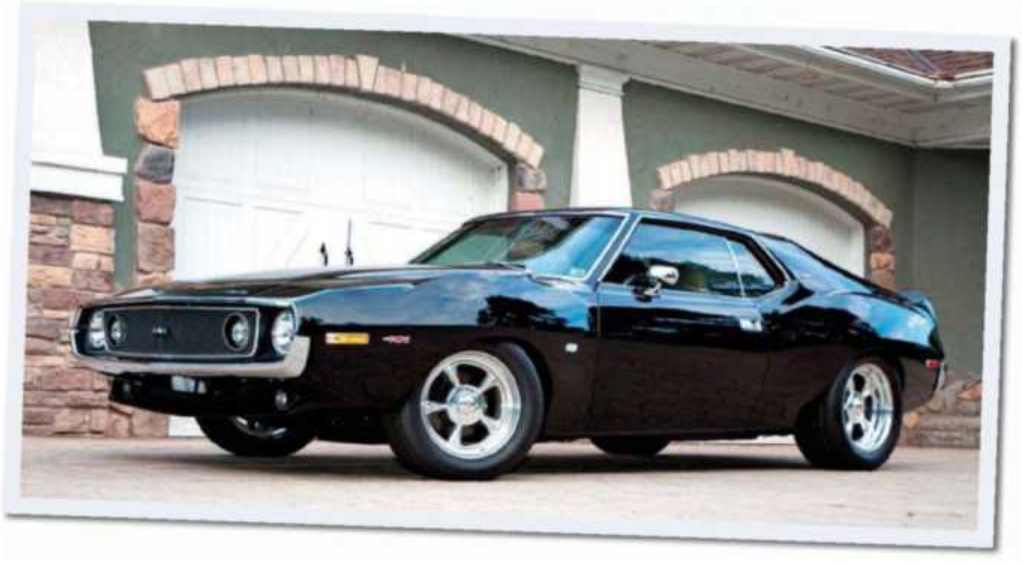
1973 AMC JAVELIN
D.L. BEACH
NEW BRIGHTON, MN

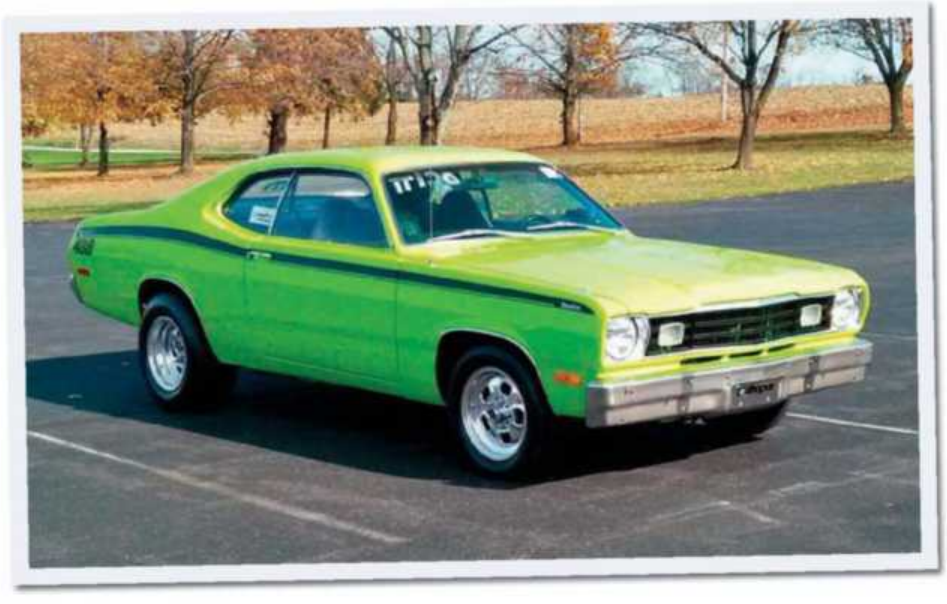
When he graduated high school in 1972, D.L. Beach had pinched his pennies and was ready to purchase his first new car. The problem, he laments, is that he'd missed out on the heyday of muscle on the showroom floor, and his 1973 model year choices were much slimmer. He almost went with an SD455 Trans Am, but a close friend was an American Motors executive so he sat down to fill out an order for an awesome Javelin AMX: 401 Go Pac, auto, console, Twin-Grip diff with 3.15 gears, E60-15 Goodyear Polyglas tires with Rally wheels, A/C, heavy-duty suspension, handling package with disc brakes, heavy-duty cooling, AM/FM Multiplex radio, light group, and visibility group.

It must have been a good pairing; D.L. still owns the well-optioned AMC to this day. It is a bit faster now, thanks to ported '71 AMC heads, shorty headers, Cam-Motion cam, and an Edelbrock 880-cfm carb and Air-Gap intake. The heavy-duty suspension works even better now with higher-rate coils and leaves, and sway bars from AMX Industries. "It's hard for me to believe I've owned this car for over 40 years," D.L. says. "Every time I'm in that seat I become an 18-year-old boy again. What a ride it's been."



1975 PLYMOUTH DUSTER
TOM KAGARISE
LITTLESTOWN, PA

The 1970s were mostly known for a slow killing off and dumbing down of all the muscle names built in the 1960s. Tom Kagarise reminds us that it's totally possible to bring the bitchiness back with the right choice colors, wheels, and engine. Tom has had this '75 Duster for a little over 10 years now, and so far he has built it all himself. Backing up the Sublime Green flashiness is a 408ci 360 stroker backed by a built 904 that he assembled himself. Putting the power down through an 8.75 Chrysler rearend attached to Weld wheels, Tom's best quarter-mile time to date is 11.81 at 112 mph.



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